New Hampshire Groundwater Level Monitoring

August, 2021

New Hampshire Geological Survey
29 Hazen Drive, PO Box 95
Concord, New Hampshire 03302-0095

September 2, 2021

GROUNDWATER CONDITIONS SUMMARY

According to the Northeast Regional Climate Center (NRCC) at Cornell University, precipitation for the month of August was dominantly between 50% and 150% of normal across New Hampshire, with parts of southern New Hampshire receiving over 150% (Figure 1). Generally, northern New Hampshire received less than average precipitation and southern New Hampshire received greater than average precipitation. Figure 1 shows the distribution of percent precipitation and water levels in the well network.

According to the National Drought Management current conditions web page, drought conditions have contracted slightly since last month, with Abnormally Dry conditions no longer in place across much of central New Hampshire. All of southern and much of central New Hampshire (70% of the state) are not in a classified drought condition (see Figure 2.) Abnormally Dry (D0), Moderate Drought(D1) and Severe Drought(D2) occupy the remaining northern 30% of the state.

In general, this month's readings show that groundwater levels in the southern to central parts of the state are normal to high, whereas levels in the upper central to northern regions of the state are normal to low. The exception is the Greenfield well, where levels rose to below normal from last month's low status. Levels at Lancaster declined in August after levels rose during July, while levels at Lisbon fell to low after last month's below normal status. Of the wells analyzed for statistics, 10 wells are showing high levels this month while 6 wells have below normal or low groundwater levels. For wells that don't have full statistics calculated, 1 of the 6 wells are below last year's monthly groundwater level.

Figures 1 and 2 show the monthly status of groundwater levels for both bedrock and overburden wells in the network. Only wells with a period of record (POR) 10 years or more are placed within statistical categories of low through high (symbols red through blue, respectively). Bedrock wells are installed into bedrock and overburden wells are installed in the unconsolidated materials above bedrock.

The New Hampshire Geological Survey's groundwater monitoring network (Figures 1 and 2) currently includes 11 bedrock and 20 overburden observation wells, all of which are measured monthly by hand. Using the monthly hand readings, monthly averages and percentile statistics were calculated and are summarized in Figures 1 and 2, the following hydrographs*, and in Table 1.

*The hydrographs show the following data over a period of 12 months: (1) monthly groundwater depths in red, (2) the monthly average over the period of record (POR) of the well in black, and (3) color-coded statistical ranges over the POR of the well. Note the POR is listed below each month's column on the chart and reported as the number of measurements for that respective month. This might include multiple readings in the same month and does not include any gaps in data so therefore may not represent a continuous period.

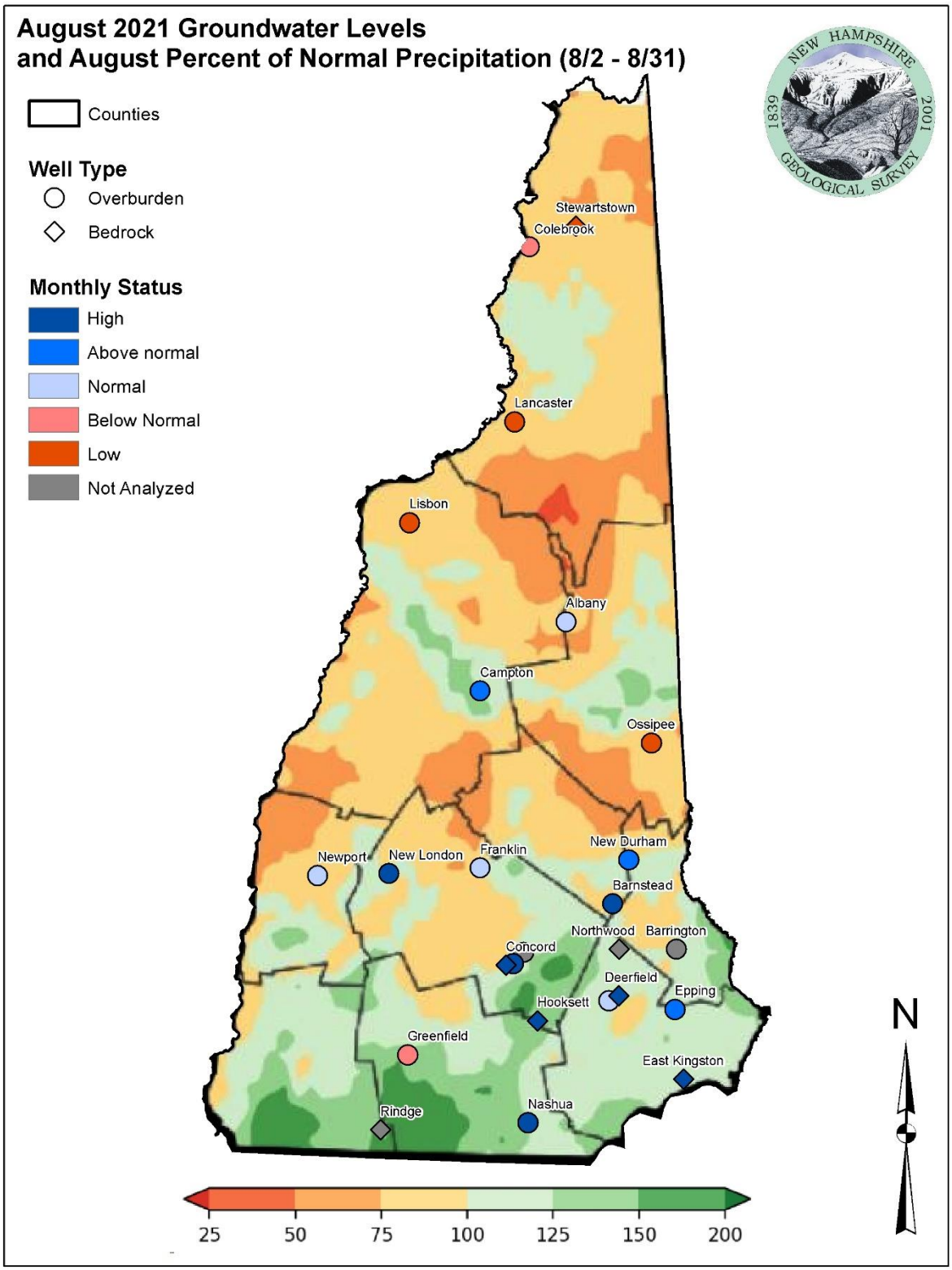


Figure 1. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and percent normal precipitation map for August, 2021 (Northeast Regional Climate Center).

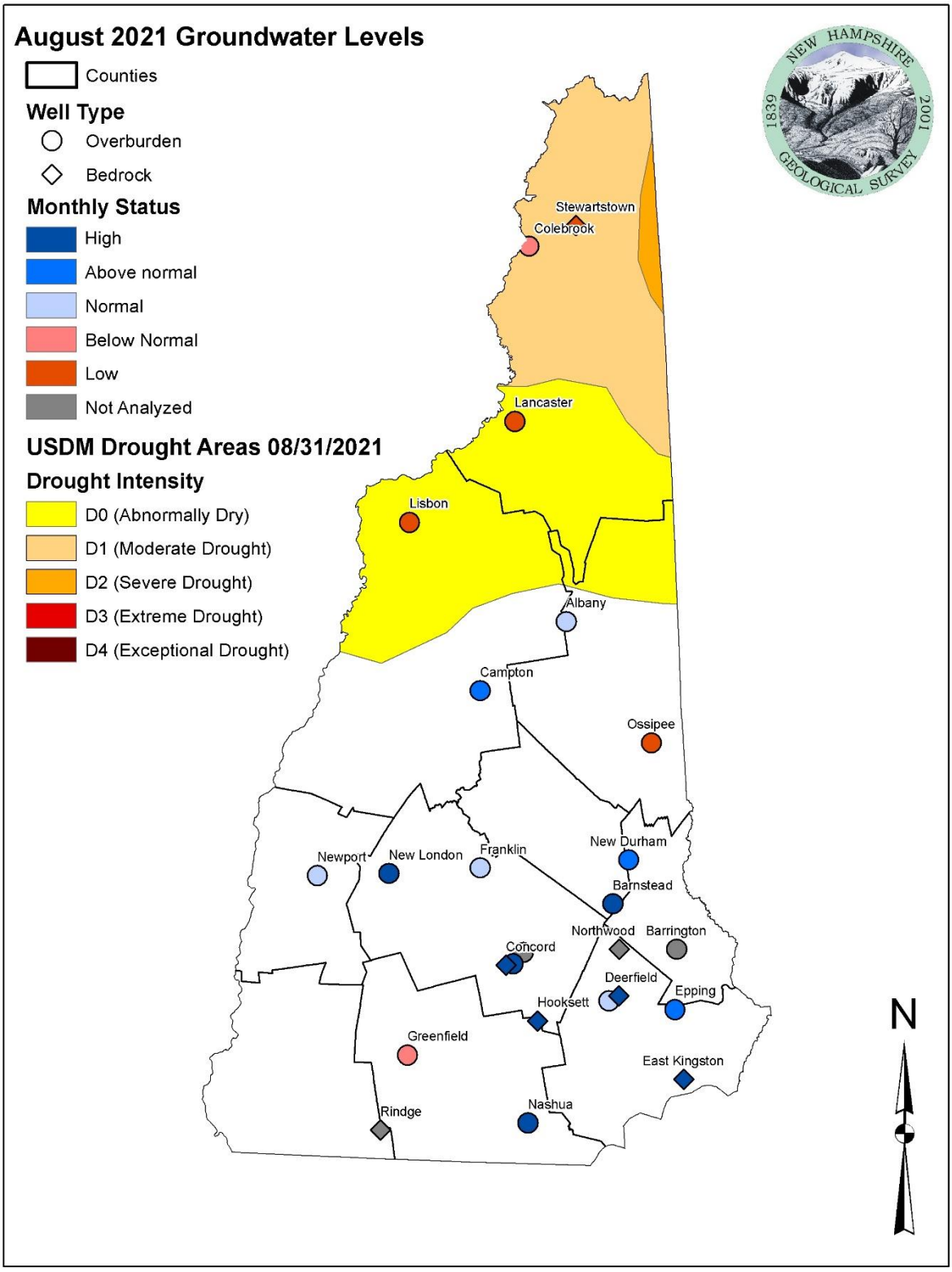
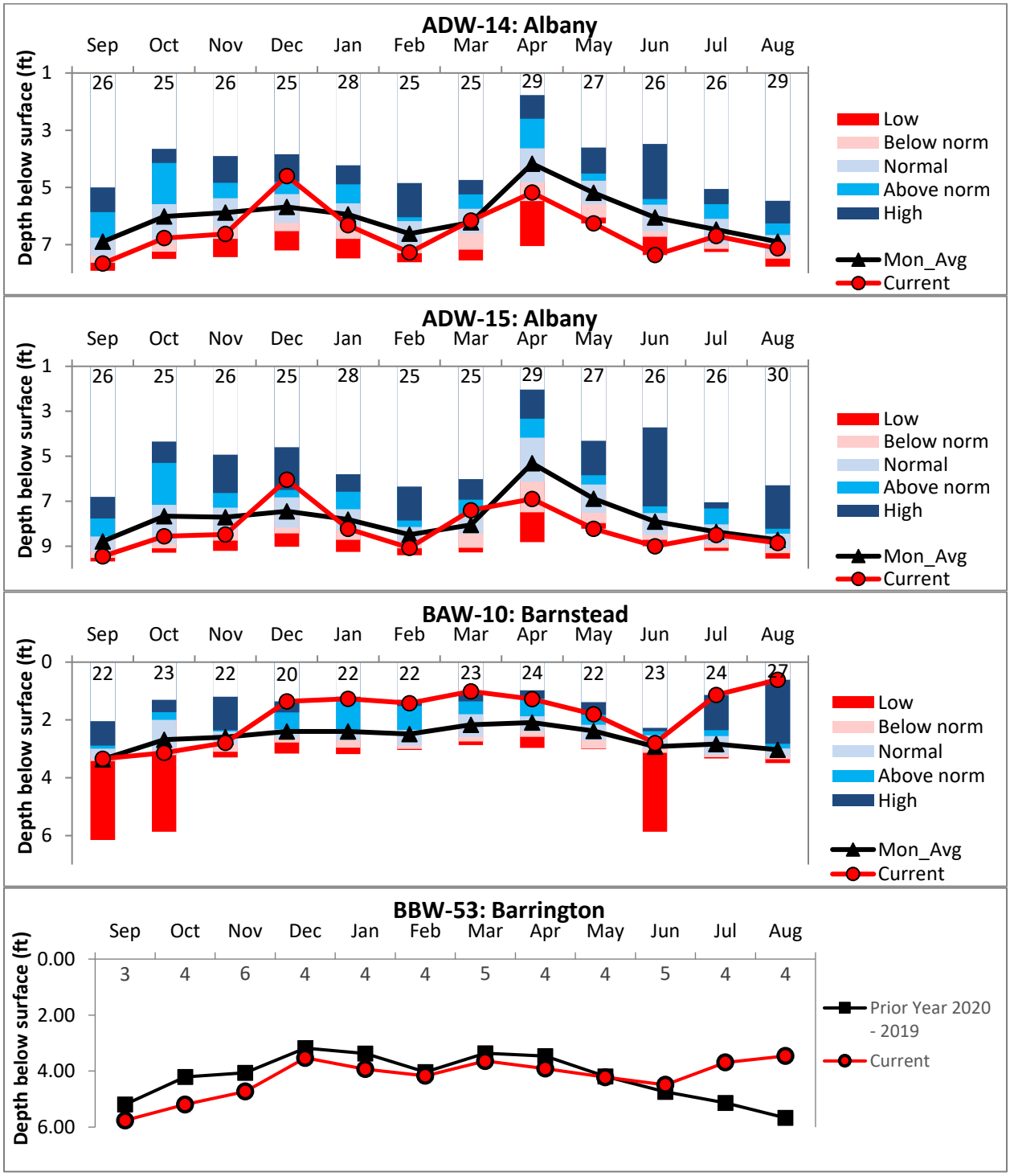


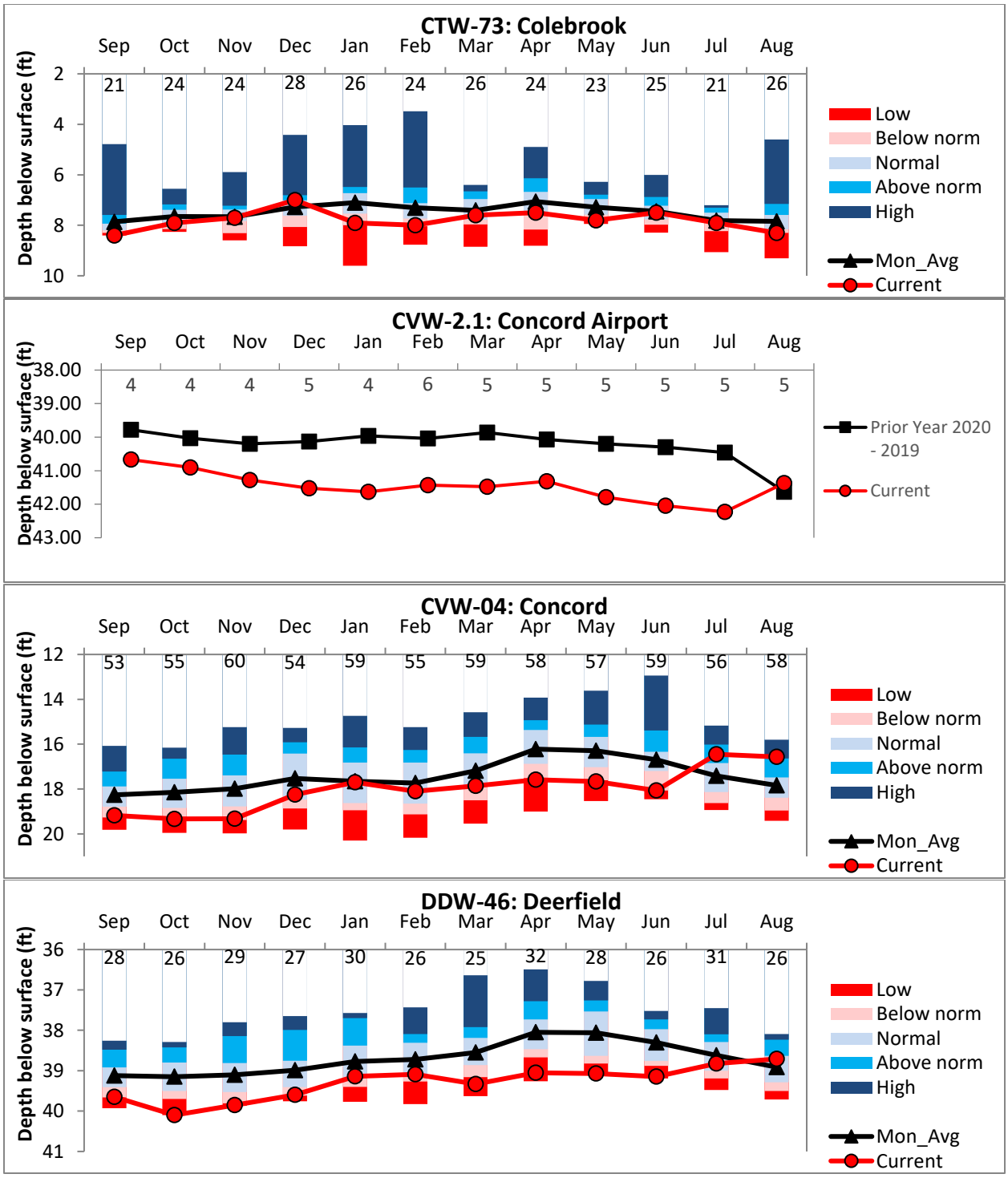
Figure 2. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and drought areas according to data released by the U.S. Drought Monitor on August 31, 2021.

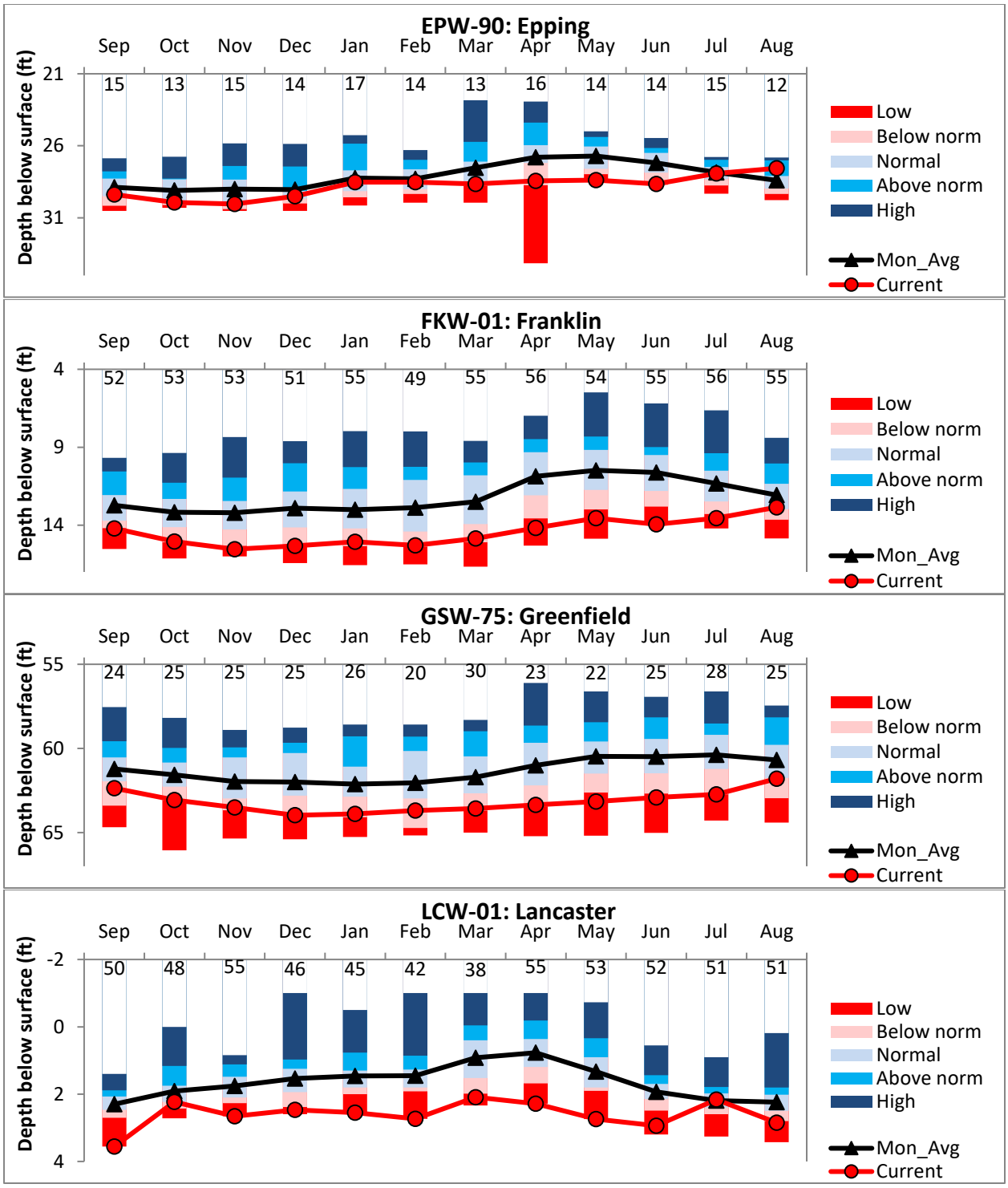
Table 1. Summary of groundwater levels sorted by region (dark blue – high, blue – above normal, light blue – normal, pink – below normal, red – low.

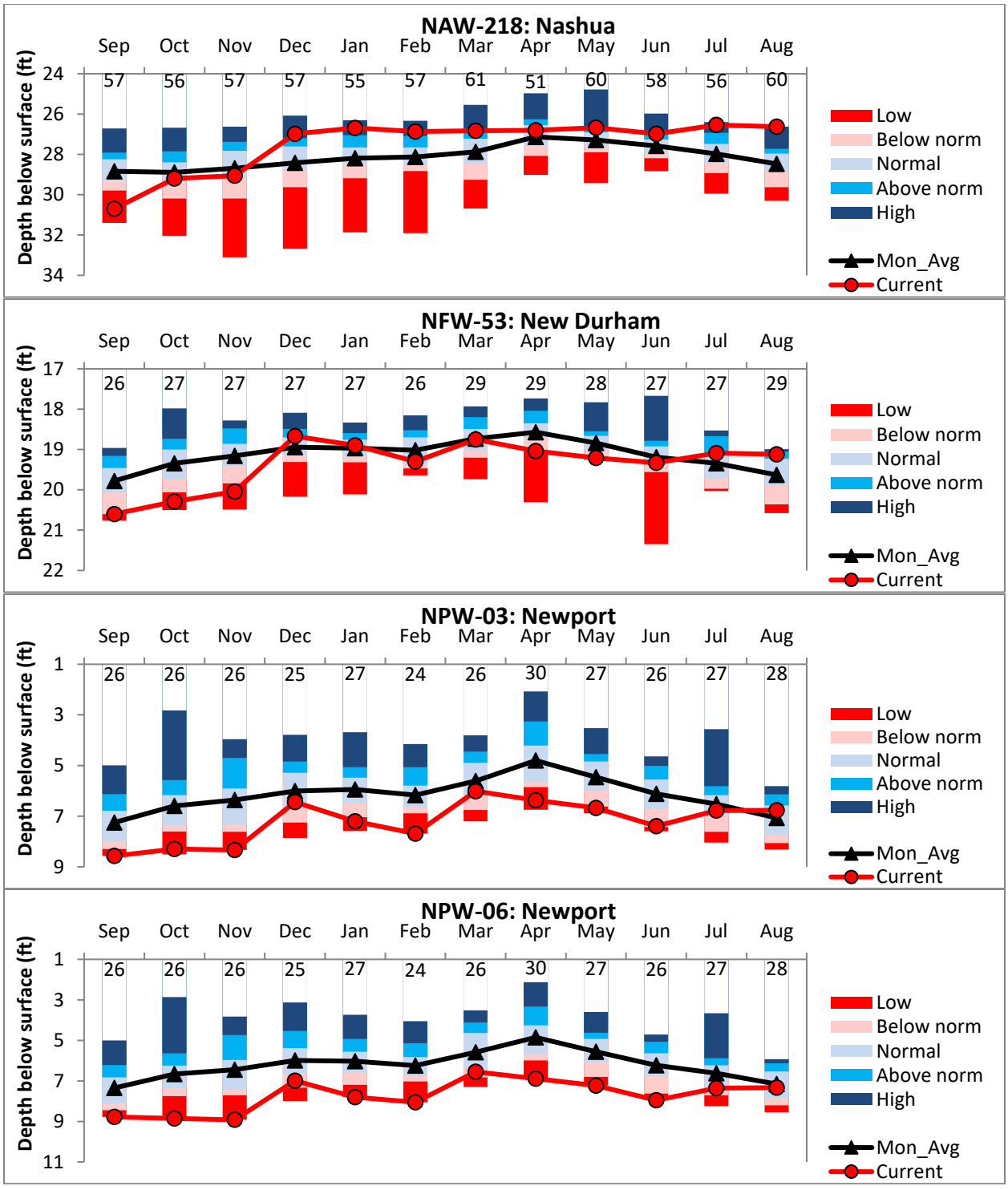
Well	Town	Well type	Screen/ open Interval (ft)	Depth to Water (ft)	Monthly Average (ft)	Current Status	Departure from Avg. (ft)	Change since last month (ft)
ADW-14	Albany	Overburden	77.5-79.5	7.13	6.9	Normal	-0.23	-0.43
ADW-15	Albany	Overburden	16-18	8.85	8.71	Normal	-0.14	-0.35
BAW-10	Barnstead	Overburden	23-25	0.61	3.03	High	2.42	0.52
BBW-53	Barrington	Overburden	21-23	3.46	-	Not Analyzed	-	0.23
CBW-34	Campton	Overburden	21-23	12.9	13.53	Above norm	0.63	0.91
CTW-73	Colebrook	Overburden	105-107	8.3	7.84	Below norm	-0.46	-0.4
CVW-02.1	Concord	Overburden	59.8-61.8	41.37	-	Not Analyzed	-	0.55
CVW-04	Concord	Overburden	25-27	16.57	17.84	High	1.27	-0.12
DDW-46	Deerfield	Overburden	59.8-61.8	38.71	38.91	Normal	0.2	0.35
EPW-90	Epping	Overburden	39.45-40.7	27.56	28.4	Above norm	0.84	0.35
FKW-01	Franklin	Overburden	45.5-47.5	12.85	12.07	Normal	-0.78	1.09
GSW-75	Greenfield	Overburden	35.8-37.8	61.8	60.68	Below norm	-1.12	0.93
LCW-01	Lancaster	Overburden	28-30	2.85	2.24	Low	-0.61	-0.69
LLW-19	Lisbon	Overburden	49.8-52.3	15.1	14.61	Low	-0.49	-0.47
NAW-218	Nashua	Overburden	66-68	26.62	28.47	High	1.85	-0.08
NFW-53	New Durham	Overburden	28-30	19.12	19.63	Above norm	0.51	0.21
NLW-01	New London	Overburden	40-42	7.13	11.44	High	4.31	0.37
NPW-03	Newport	Overburden	40.5-42.5	6.76	7.07	Normal	0.31	0.02
NPW-06	Newport	Overburden	58-60	7.33	7.15	Normal	-0.18	0.03
OXW-38	Ossipee	Overburden	0-22.55	36.38	35.43	Low	-0.95	0.04
CVWB-01	Concord	Bedrock	470-480	20.83	25.55	High	4.72	0.01
CVWB-02	Concord	Bedrock	0-315	15.69	21.34	High	5.65	-1.89
DDWB-01	Deerfield	Bedrock	0-300	17	17.64	High	0.64	0.17
EAWB-01	East Kingston	Bedrock	463-473	22.42	23.99	High	1.57	0.03
EAWB-02	East Kingston	Bedrock	0-323	21.77	23.62	High	1.85	-0.87
HTW-05	Hooksett	Bedrock	0-102.7	46.99	48.65	High	1.66	1.8
NWWB-01	Northwood	Bedrock	0-130	5.59	-	Not Analyzed	-	-2.98
RGWB-01	Rindge	Bedrock	391-401	14.44	-	Not Analyzed	-	-0.19
RGWB-02	Rindge	Bedrock	0-285	17.15	-	Not Analyzed	-	-0.19
SOWB-01	Stewartstown	Bedrock	443-453	17.8	-	Not Analyzed	-	-0.4
SOWB-02	Stewartstown	Bedrock	0-303	26.3	23.8	Low	-2.5	-1.2

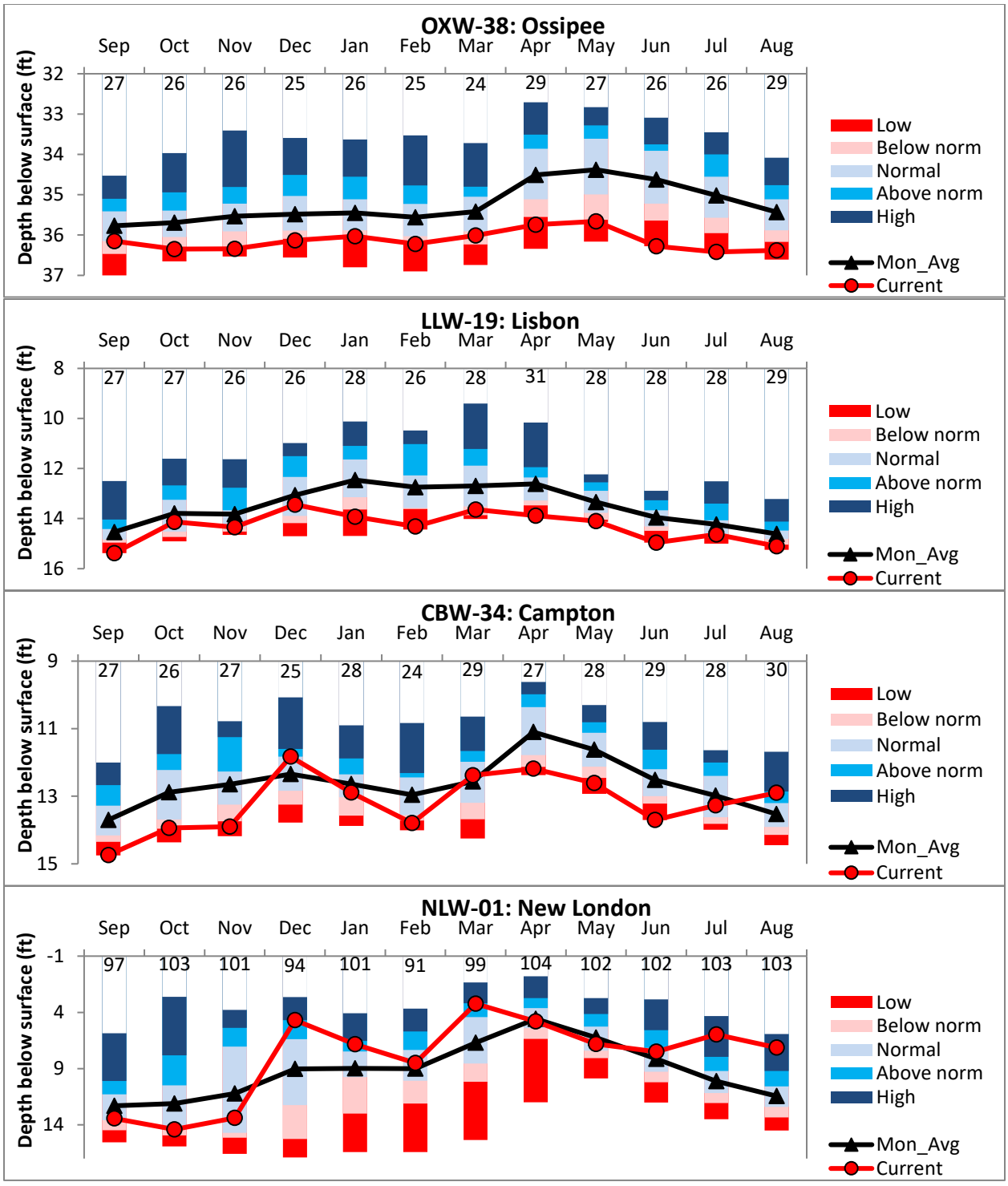
OVERBURDEN WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)



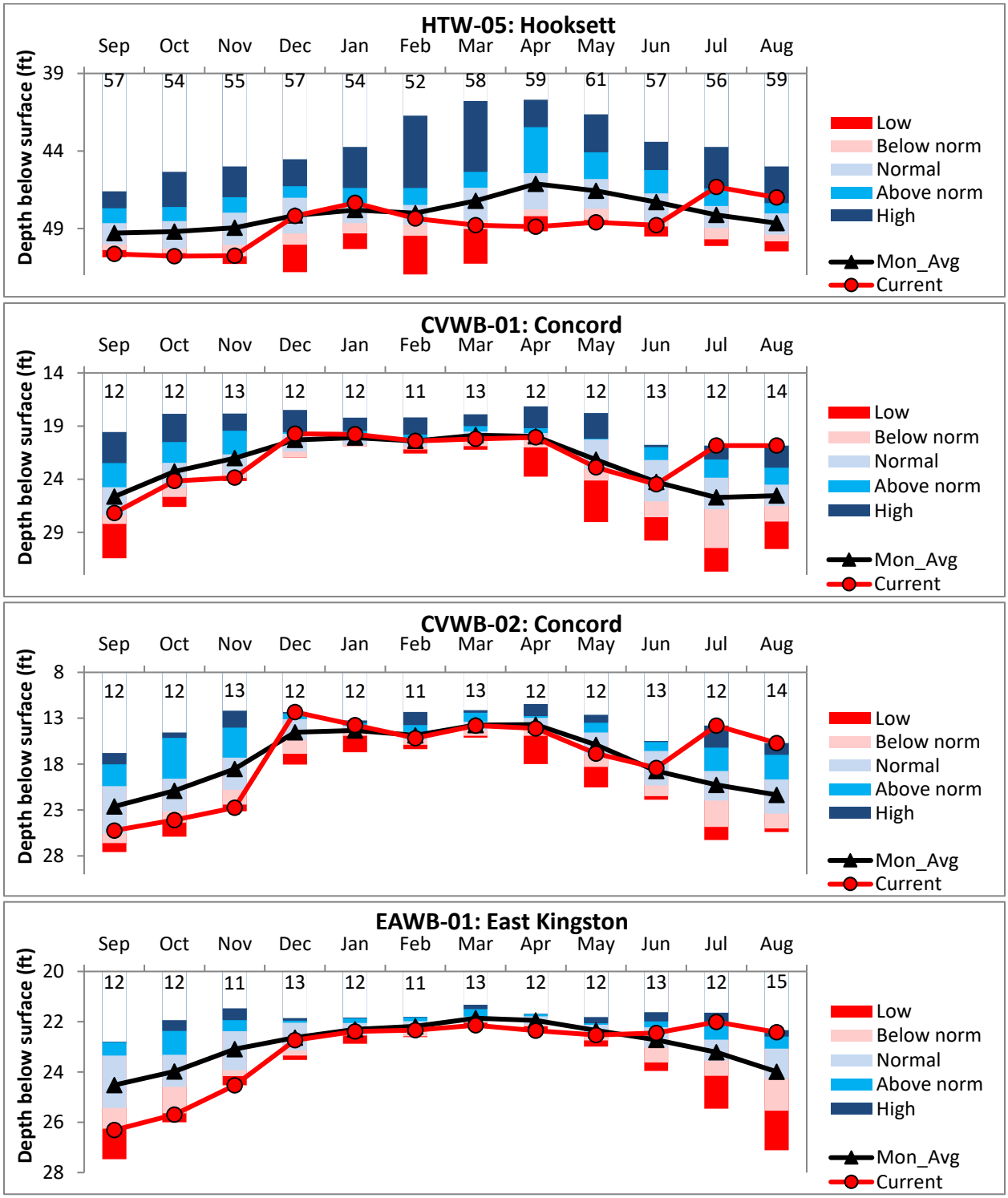

CTW-73: Colebrook
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
2 4 6 8 10
21 24 24 28 26 24 26 24 23 25 21 26
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
CVW-2.1: Concord Airport
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
38.00 39.00 40.00 41.00 42.00 43.00
4 4 4 5 4 6 5 5 5 5 5 5
Prior Year 2020 - 2019
Current
CVW-04: Concord
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
12 14 16 18 20
53 55 60 54 59 55 59 58 57 59 56 58
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
DDW-46: Deerfield
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
36 37 38 39 40 41
28 26 29 27 30 26 25 32 28 26 31 26
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

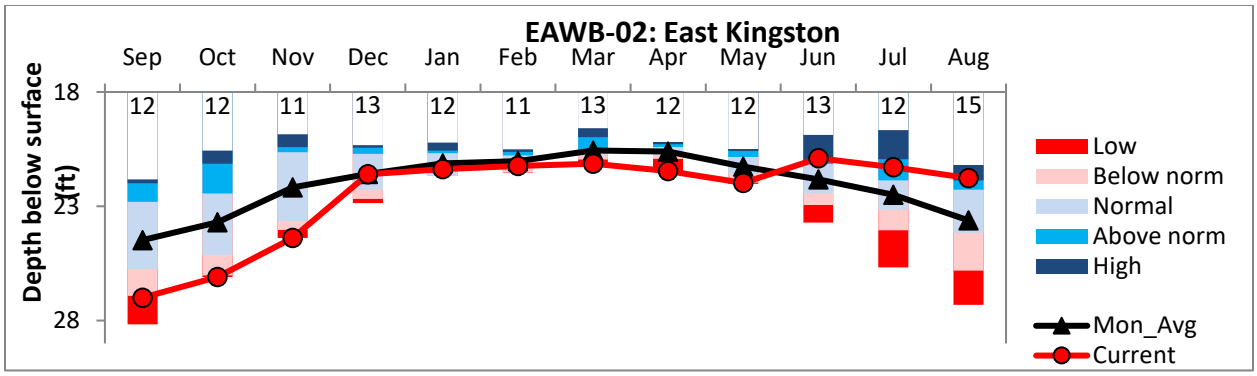

EPW-90: Epping
Depth below surface (ft)
21
26
31
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
15 13 15 14 17 14 13 16 14 14 15 12
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
FKW-01: Franklin
Depth below surface (ft)
4
9
14
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
52 53 53 51 55 49 55 56 54 55 56 55
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
GSW-75: Greenfield
Depth below surface (ft)
55
60
65
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
24 25 25 25 26 20 30 23 22 25 28 25
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
LCW-01: Lancaster
Depth below surface (ft)
-2
0
2
4
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
50 48 55 46 45 42 38 55 53 52 51 51
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

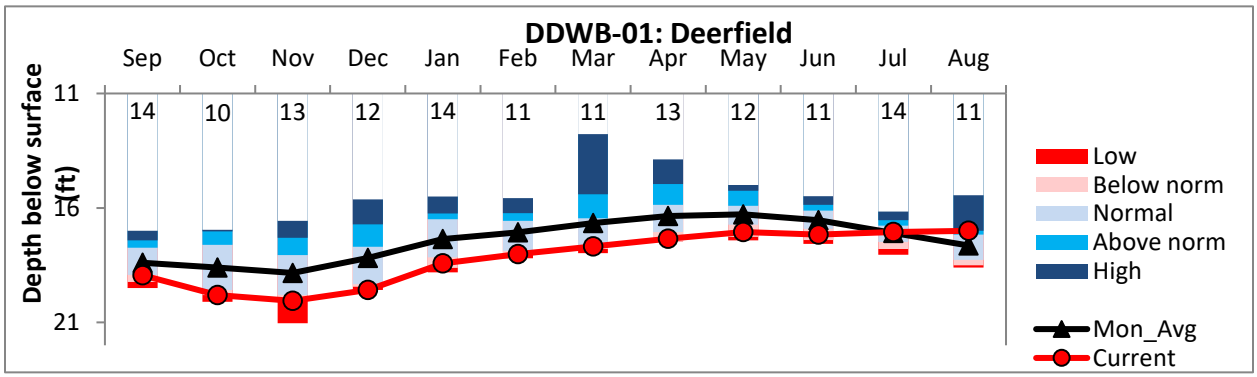

NAW-218: Nashua
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
24 26 28 30 32 34
57 56 57 57 55 57 61 51 60 58 56 60
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NFW-53: New Durham
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
17 18 19 20 21 22
26 27 27 27 27 26 29 29 28 27 27 29
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NPW-03: Newport
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
1 3 5 7 9
26 26 26 25 27 24 26 30 27 26 27 28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NPW-06: Newport
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
1 3 5 7 9 11
26 26 26 25 27 24 26 30 27 26 27 28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

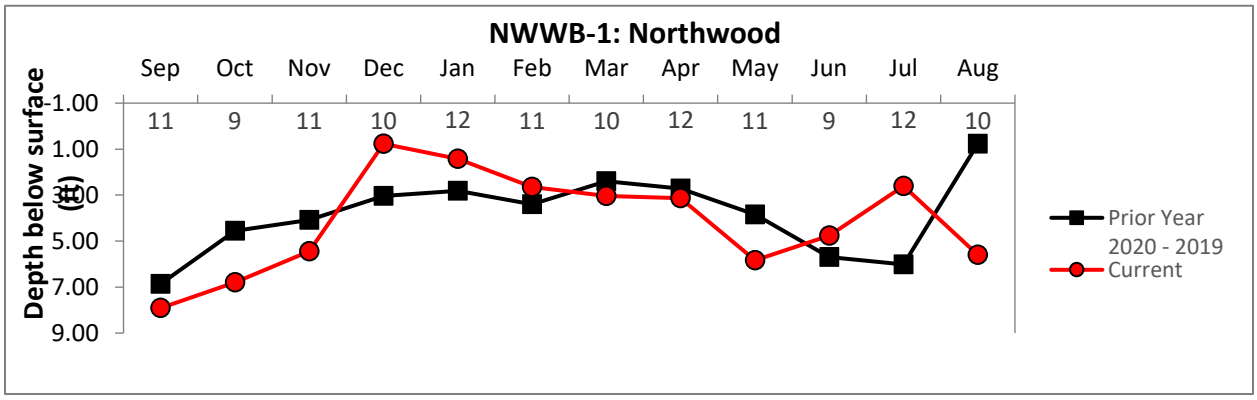

OXW-38: Ossipee
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
32 33 34 35 36 37
27 26 26 25 26 25 24 29 27 26 26 29
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
LLW-19: Lisbon
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
8 10 12 14 16
27 27 26 26 28 26 28 31 28 28 28 29
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
CBW-34: Campton
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
9 11 13 15
27 26 27 25 28 24 29 27 28 29 28 30
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NLW-01: New London
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
-1 4 9 14
97 103 101 94 101 91 99 104 102 102 103 103
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

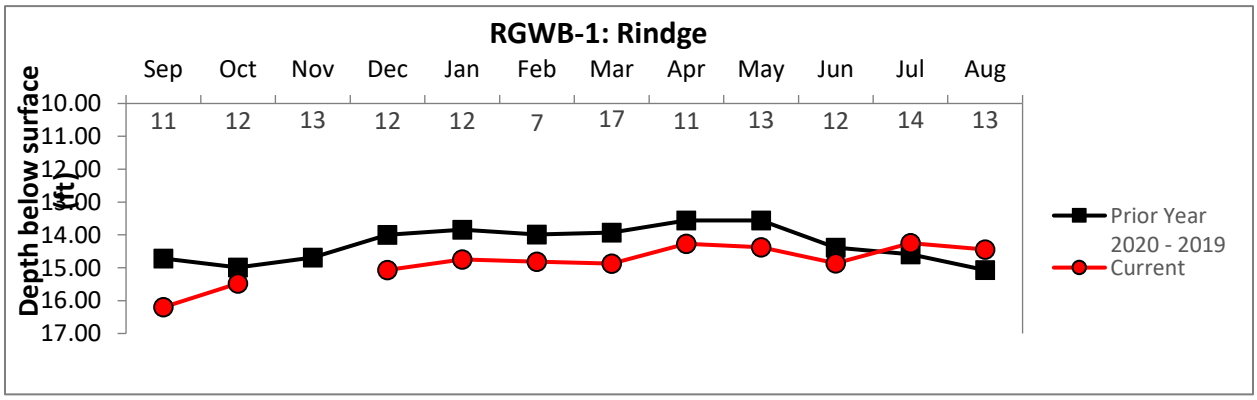
BEDROCK WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)

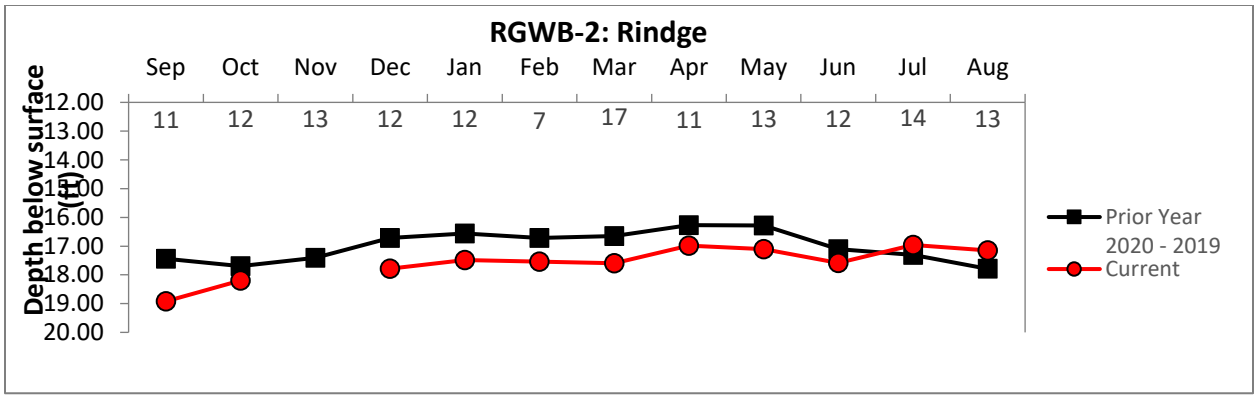


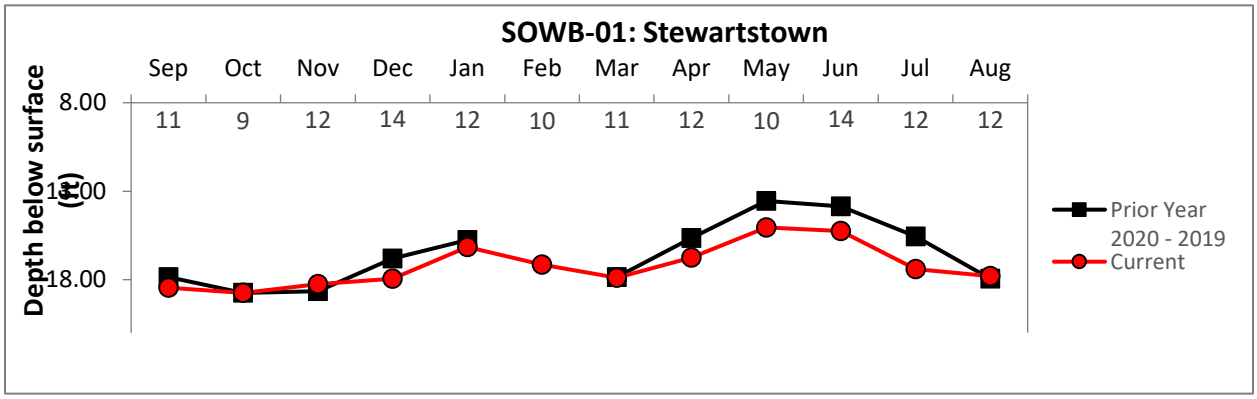

EAWB-02: East Kingston
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
18
23
28
12 12 11 13 12 11 13 12 12 13 12 15
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

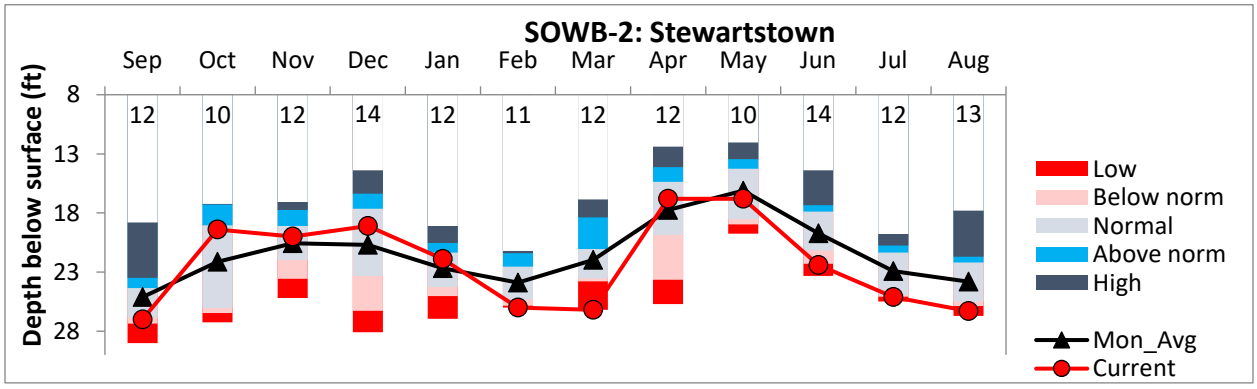

DDWB-01: Deerfield
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
11
16
21
14 10 13 12 14 11 11 13 12 11 14 11
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current


NWWB-1: Northwood
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
-1.00
1.00
3.00
5.00
7.00
9.00
11 9 11 10 12 11 10 12 11 9 12 10
Prior Year
2020 - 2019
Current

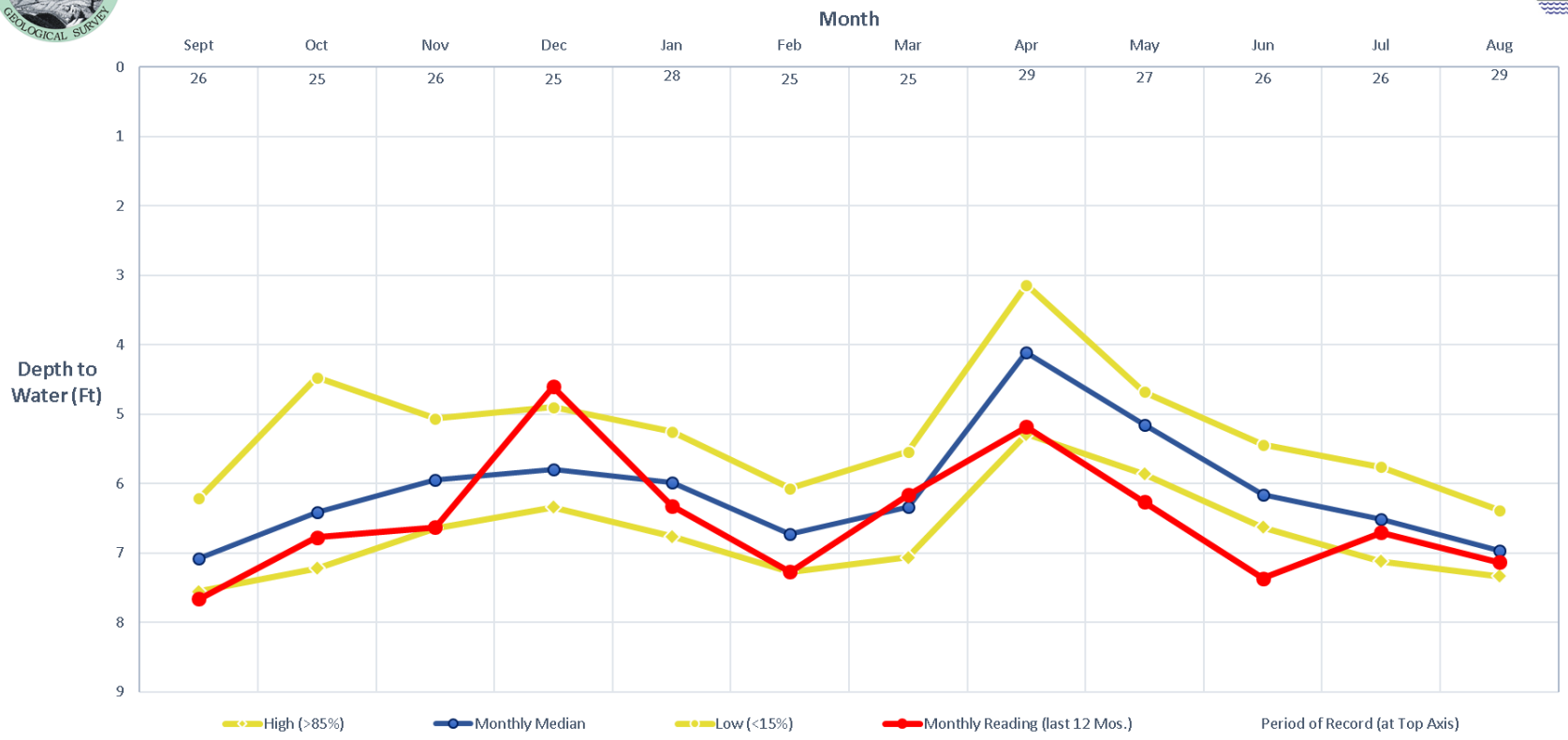

RGWB-1: Rindge
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Depth below surface (ft)
10.00
11.00
12.00
13.00
14.00
15.00
16.00
17.00
11 12 13 12 12 7 17 11 13 12 14 13
Prior Year
2020 - 2019
Current


RGWB-2: Rindge
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
11 12 13 12 12 7 17 11 13 12 14 13
Depth below surface (ft)
12.00
13.00
14.00
15.00
16.00
17.00
18.00
19.00
20.00
Prior Year
2020 - 2019
Current

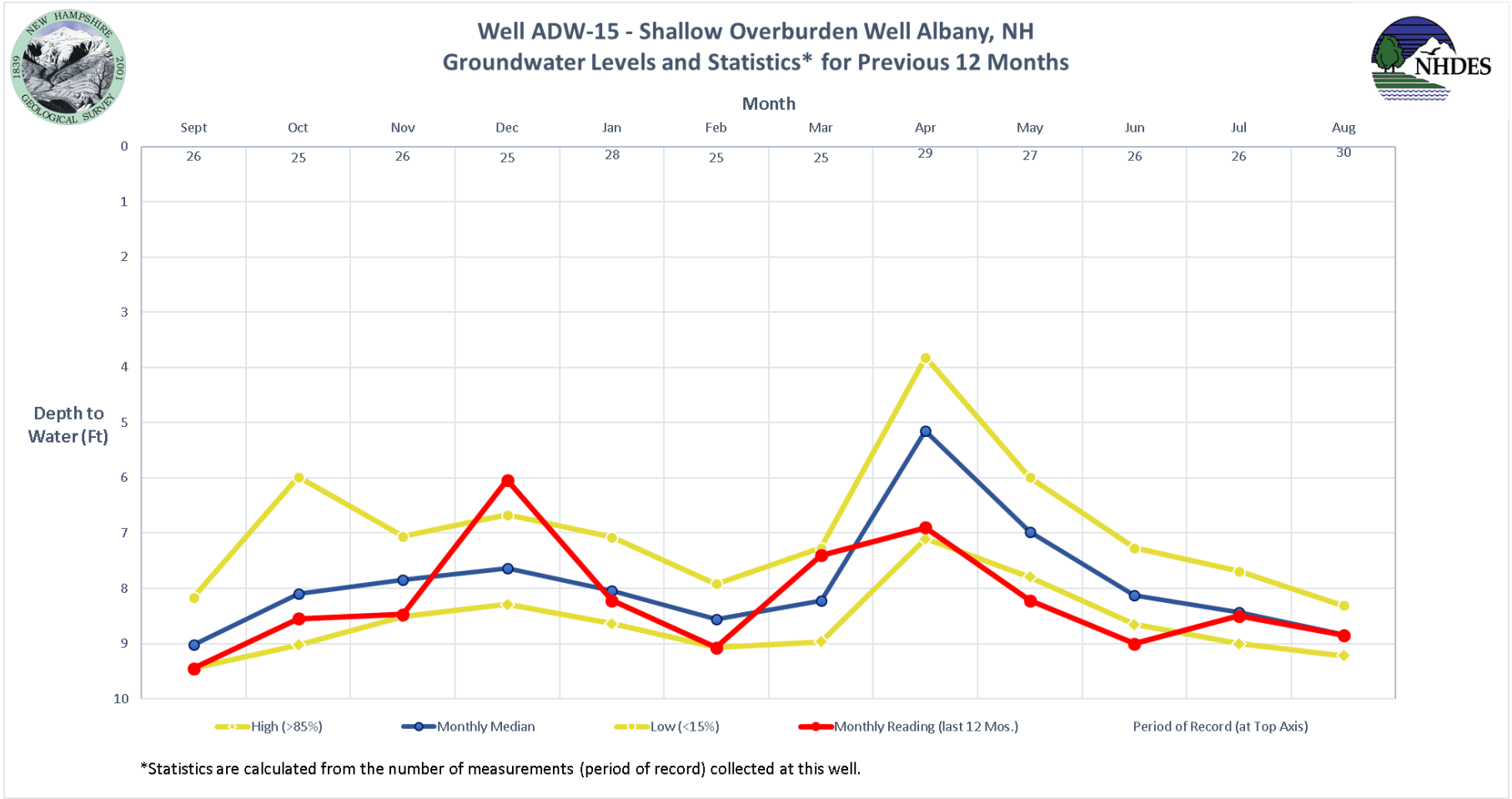

SOWB-01: Stewartstown
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
11 9 12 14 12 10 11 12 10 14 12 12
Depth below surface (ft)
8.00
18.00
Prior Year
2020 - 2019
Current


SOWB-2: Stewartstown
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
12 10 12 14 12 11 12 12 10 14 12 13
Depth below surface (ft)
8
13
18
23
28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

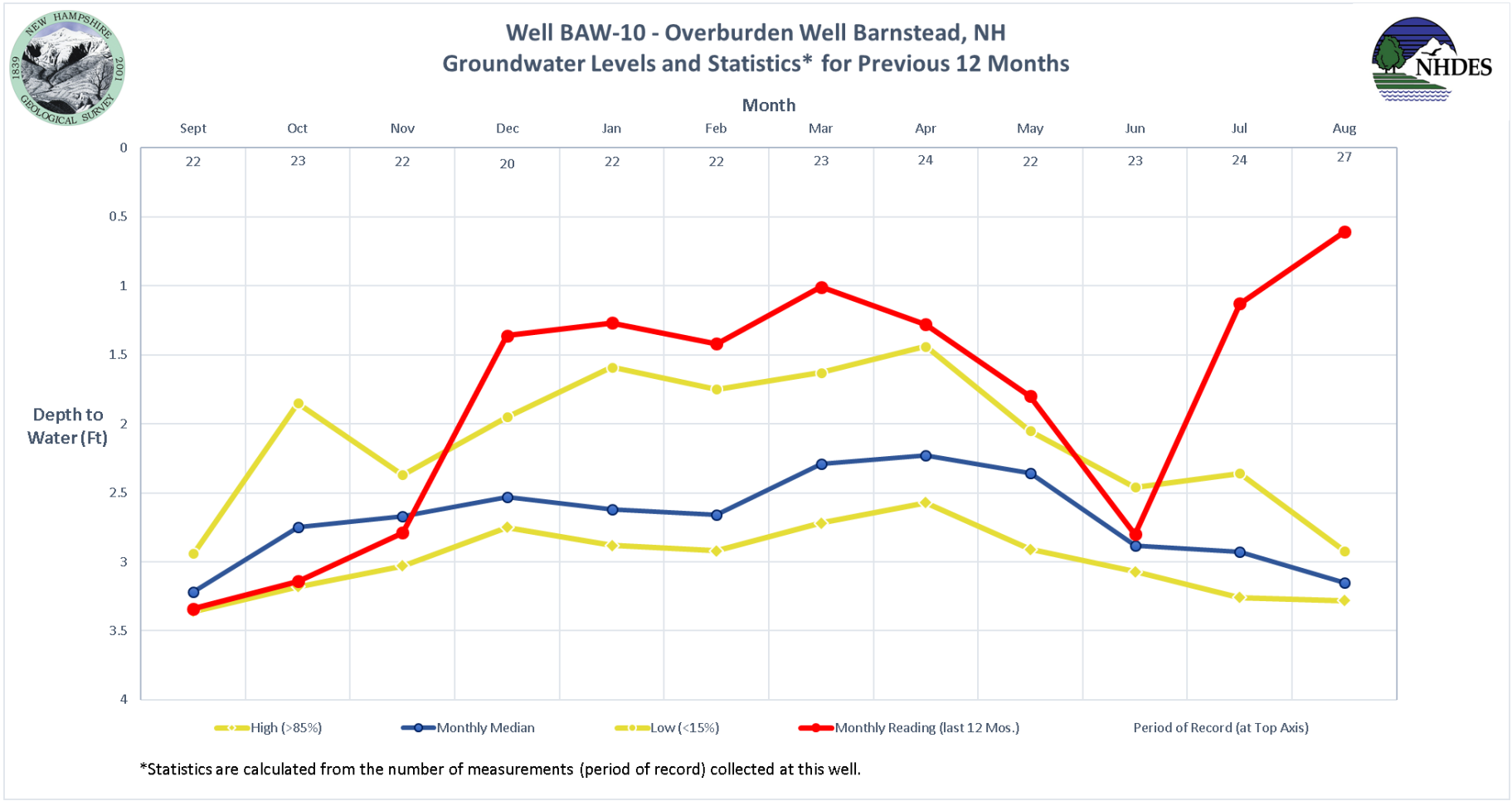
Well ADW-14 - Deep Overburden Well Albany, NH
Groundwater Levels and Statistics* for Previous 12 Months

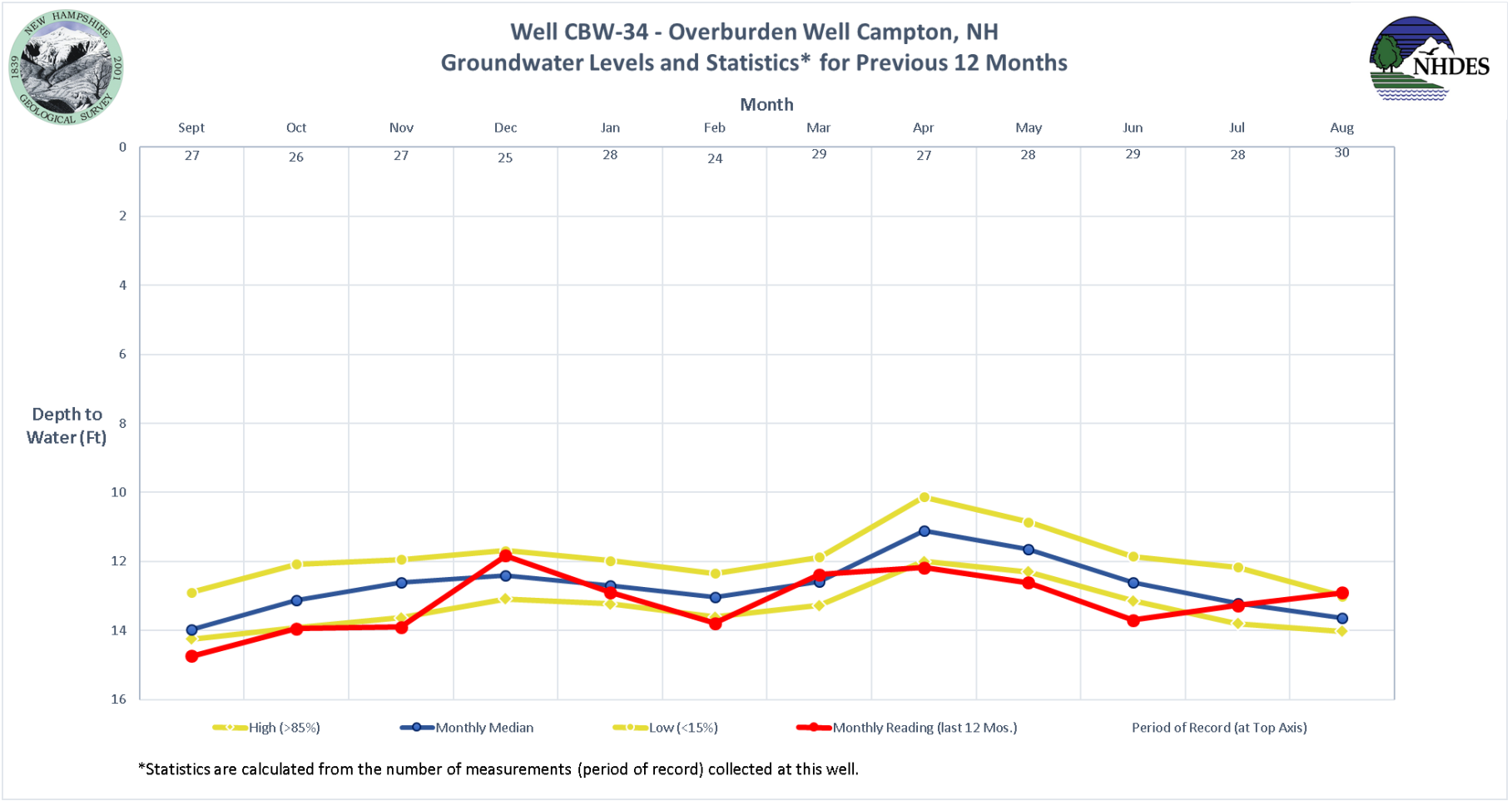


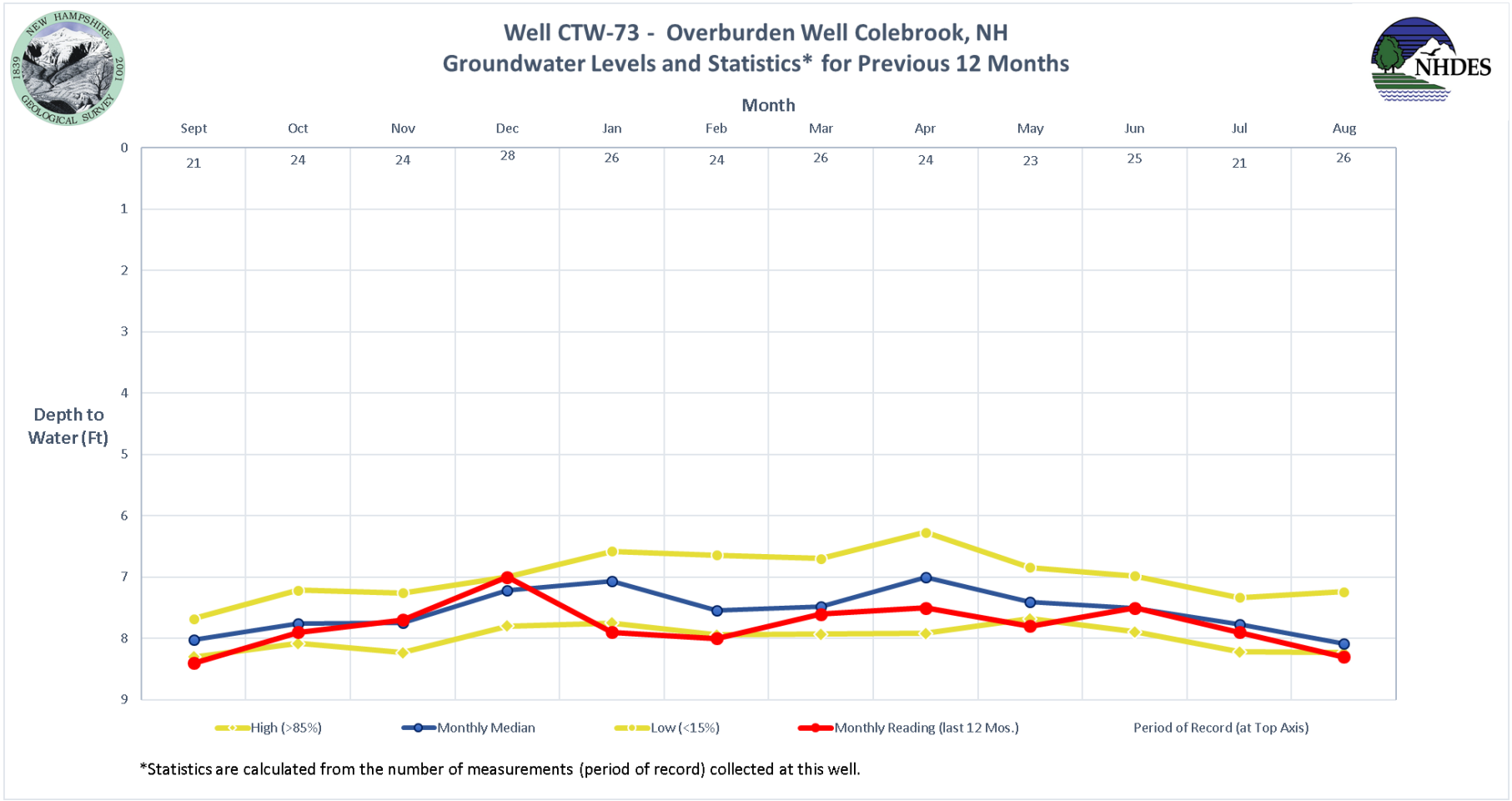
*Statistics are calculated from the number of measurements (period of record) collected at this well.

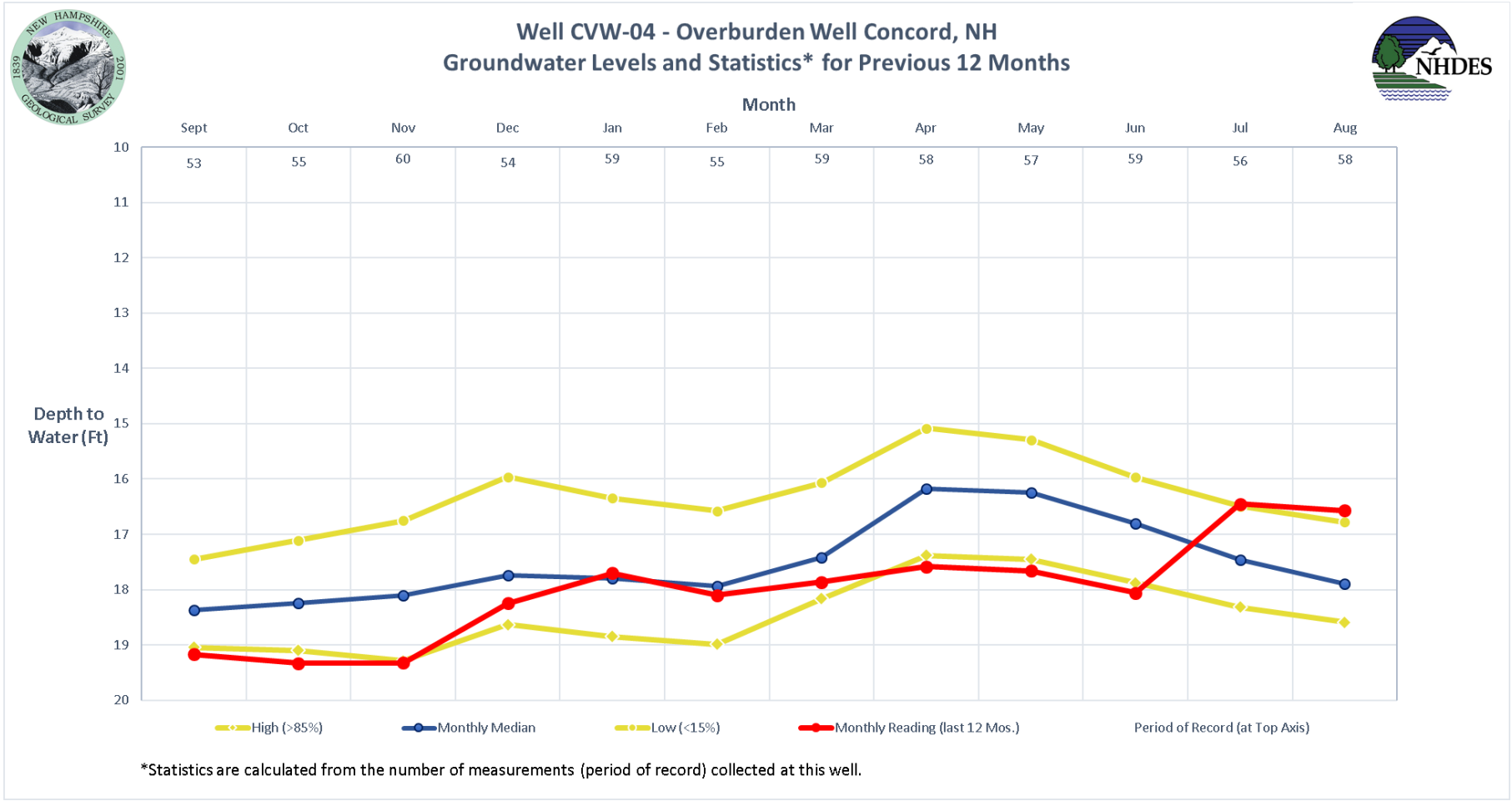


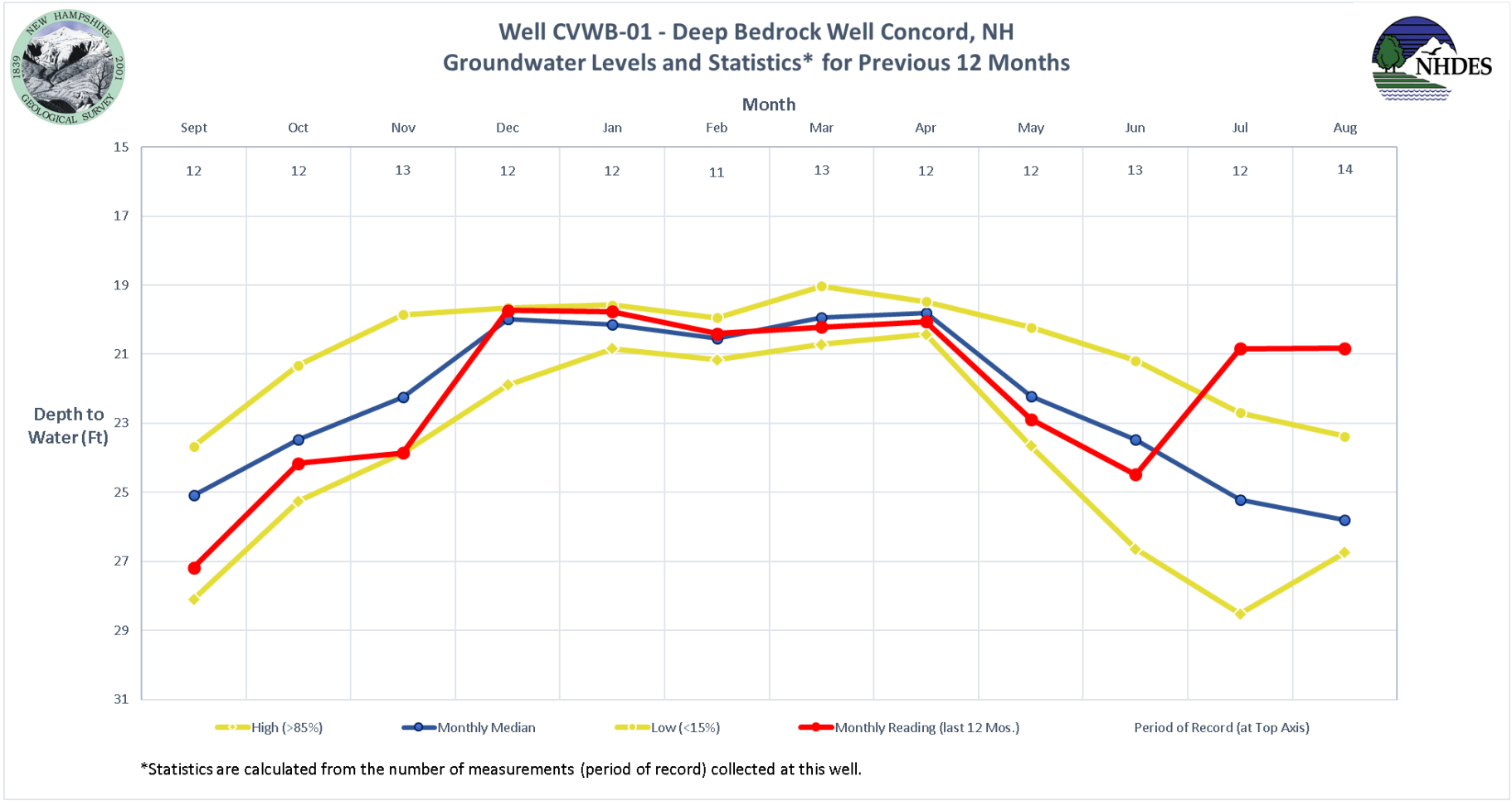
*Statistics are calculated from the number of measurements (period of record) collected at this well.

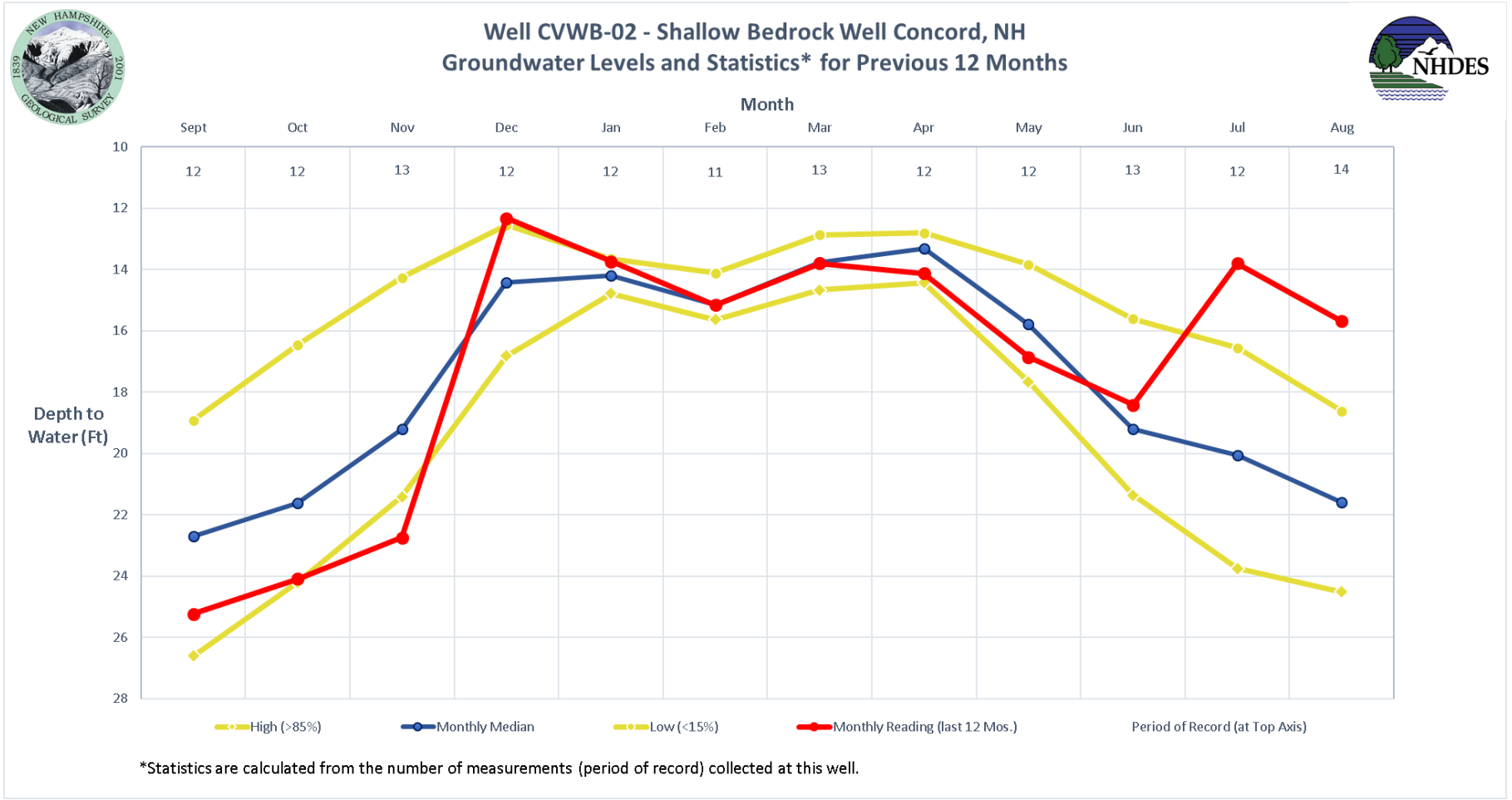

Well BAW-10 - Overburden Well Barnstead, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
22
23
22
20
22
22
23
24
22
23
24
27
0
0.5
1
1.5
2
2.5
3
3.5
4
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

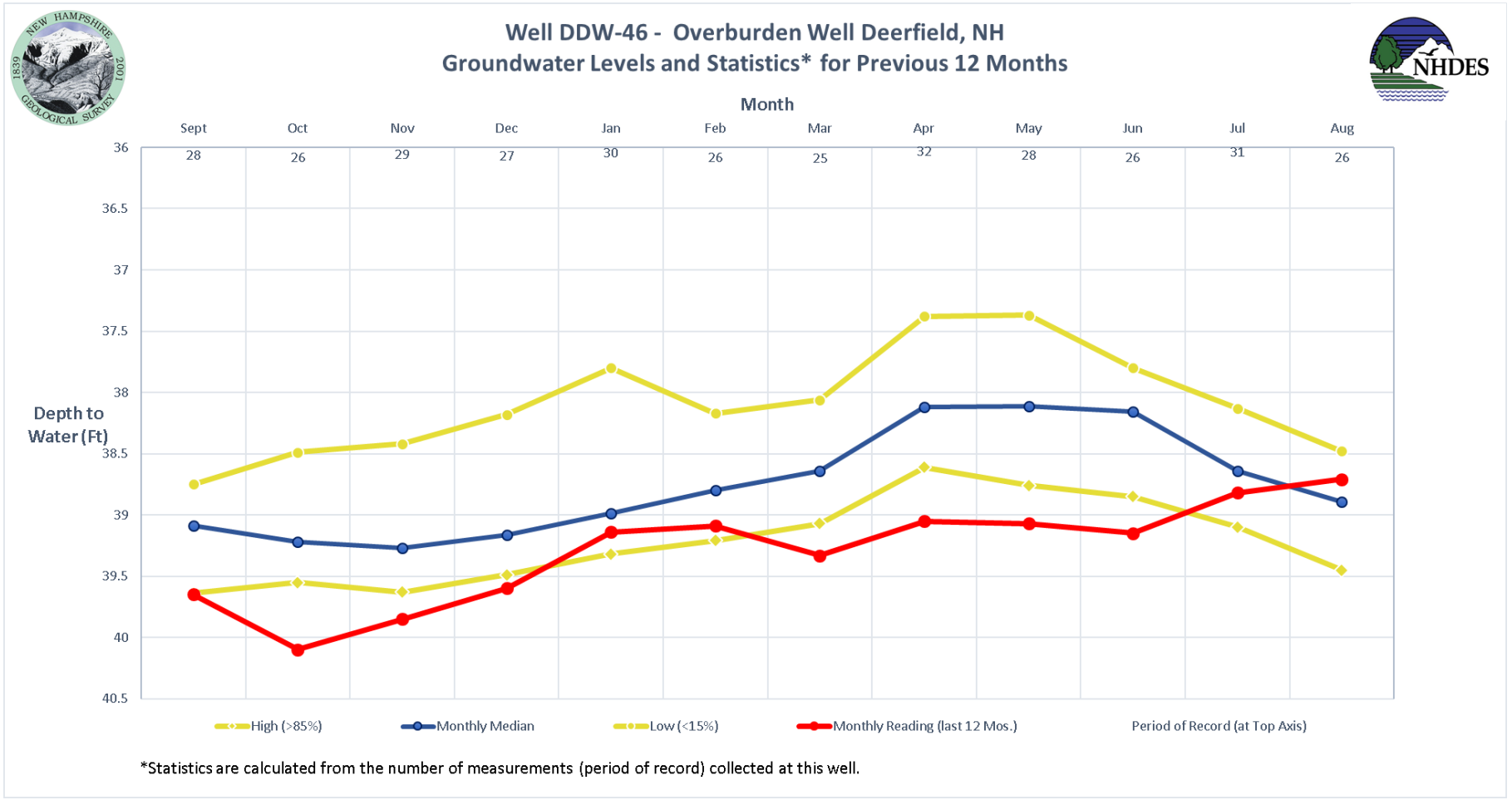

Well CBW-34 - Overburden Well Campton, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
27
26
27
25
28
24
29
27
28
29
28
30
0
2
4
6
8
10
12
14
16
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

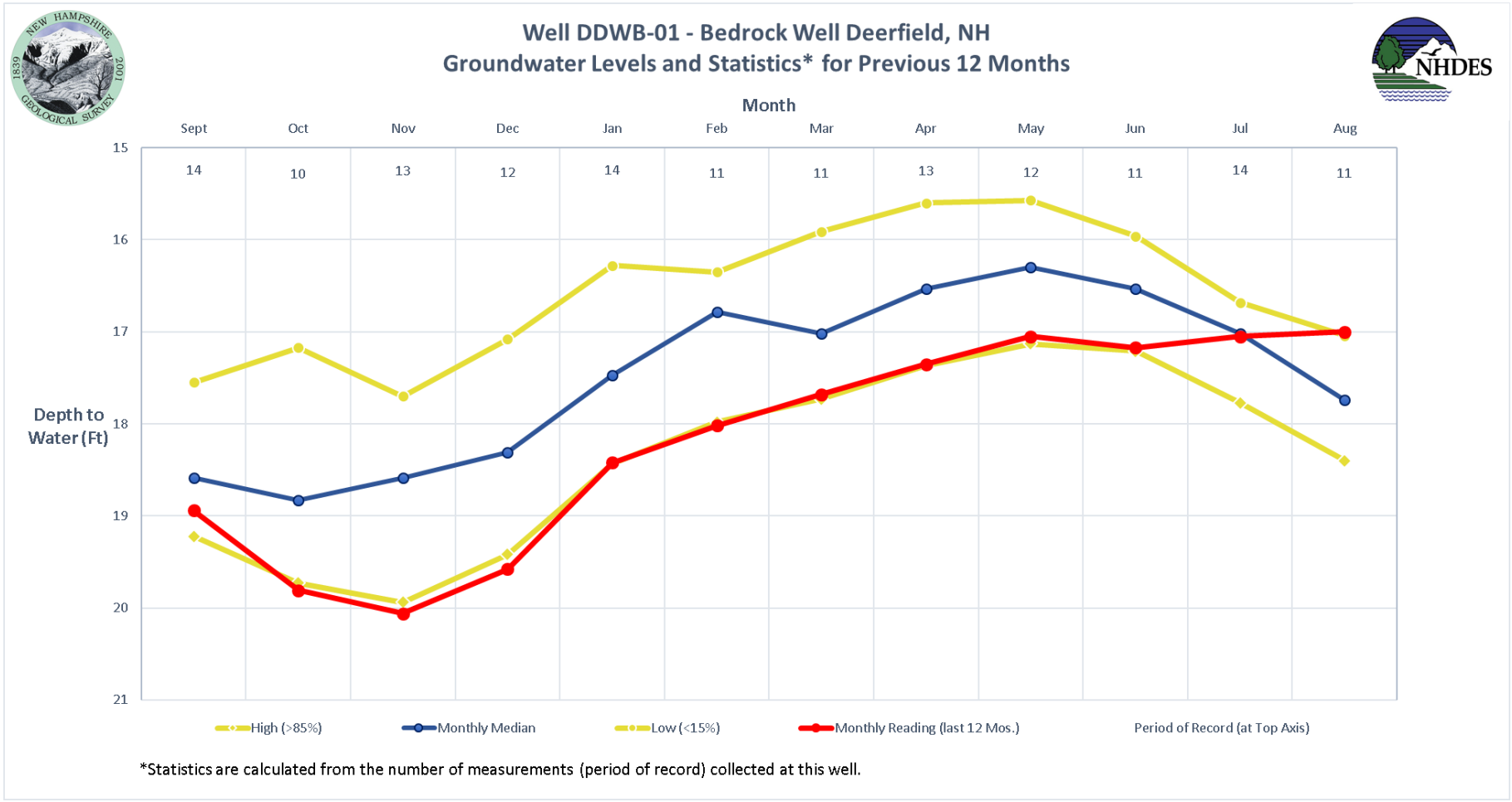

Well CTW-73 - Overburden Well Colebrook, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
21
24
24
28
26
24
26
24
23
25
21
26
Depth to Water (Ft)
0
1
2
3
4
5
6
7
8
9
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

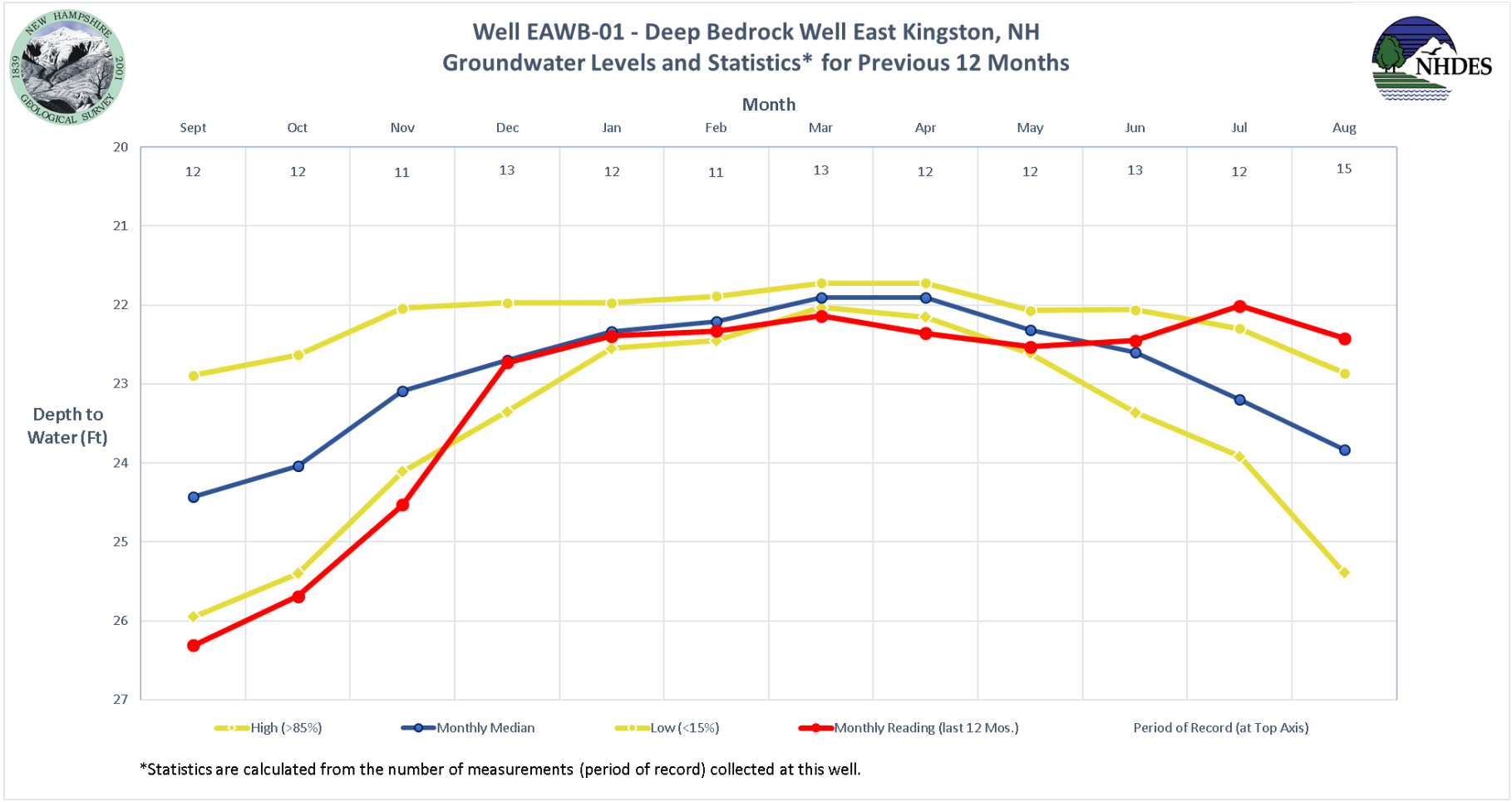

Well CVW-04 - Overburden Well Concord, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
53
55
60
54
59
55
59
58
57
59
56
58
Depth to Water (Ft)
10
11
12
13
14
15
16
17
18
19
20
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

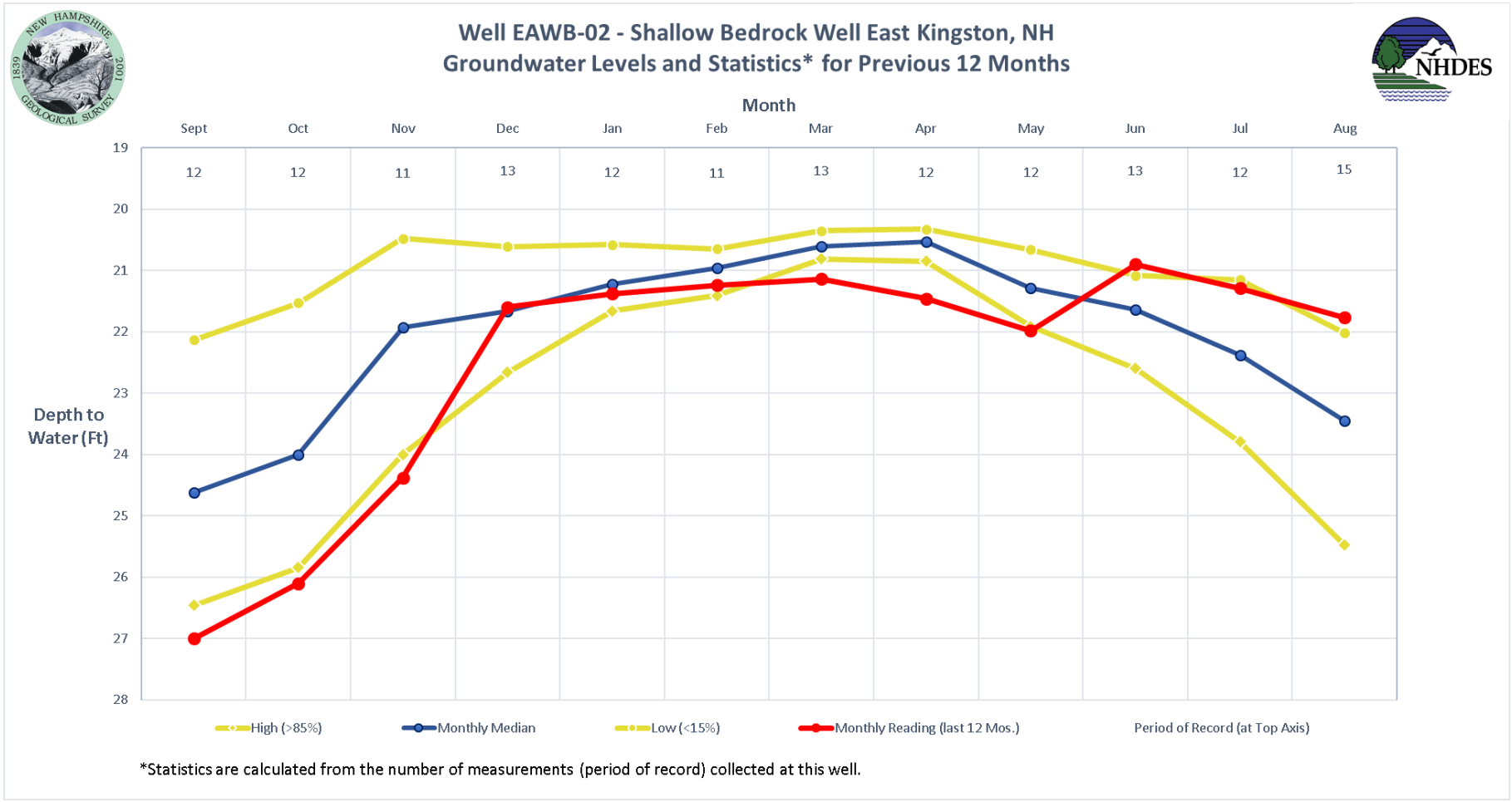

Well CVWB-01 - Deep Bedrock Well Concord, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
12 12 13 12 12 11 13 12 12 13 12 14
15 17 19 21 23 25 27 29 31
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

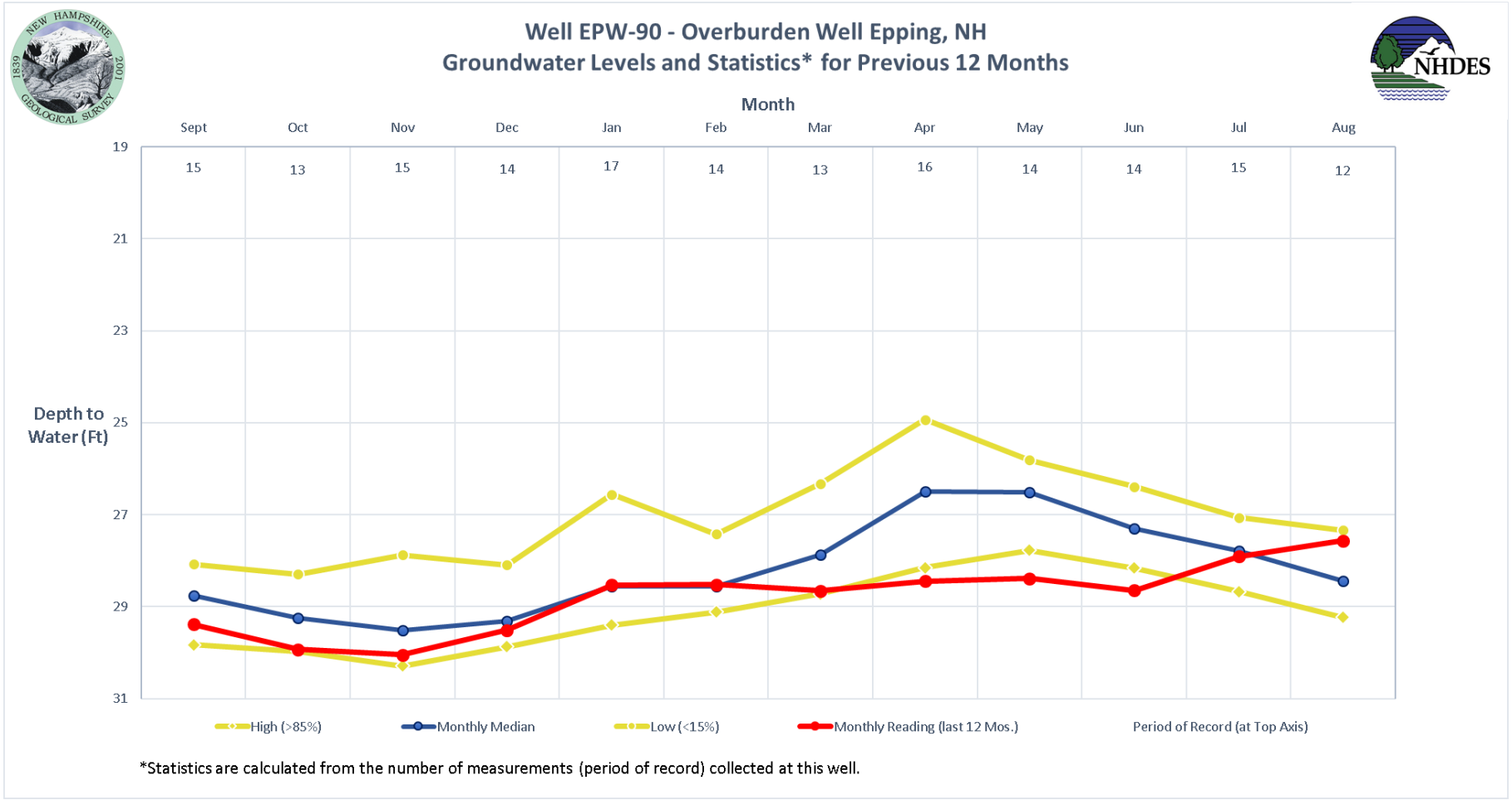

Well CVWB-02 - Shallow Bedrock Well Concord, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
12
12
13
12
12
11
13
12
12
13
12
14
10
12
14
16
18
20
22
24
26
28
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

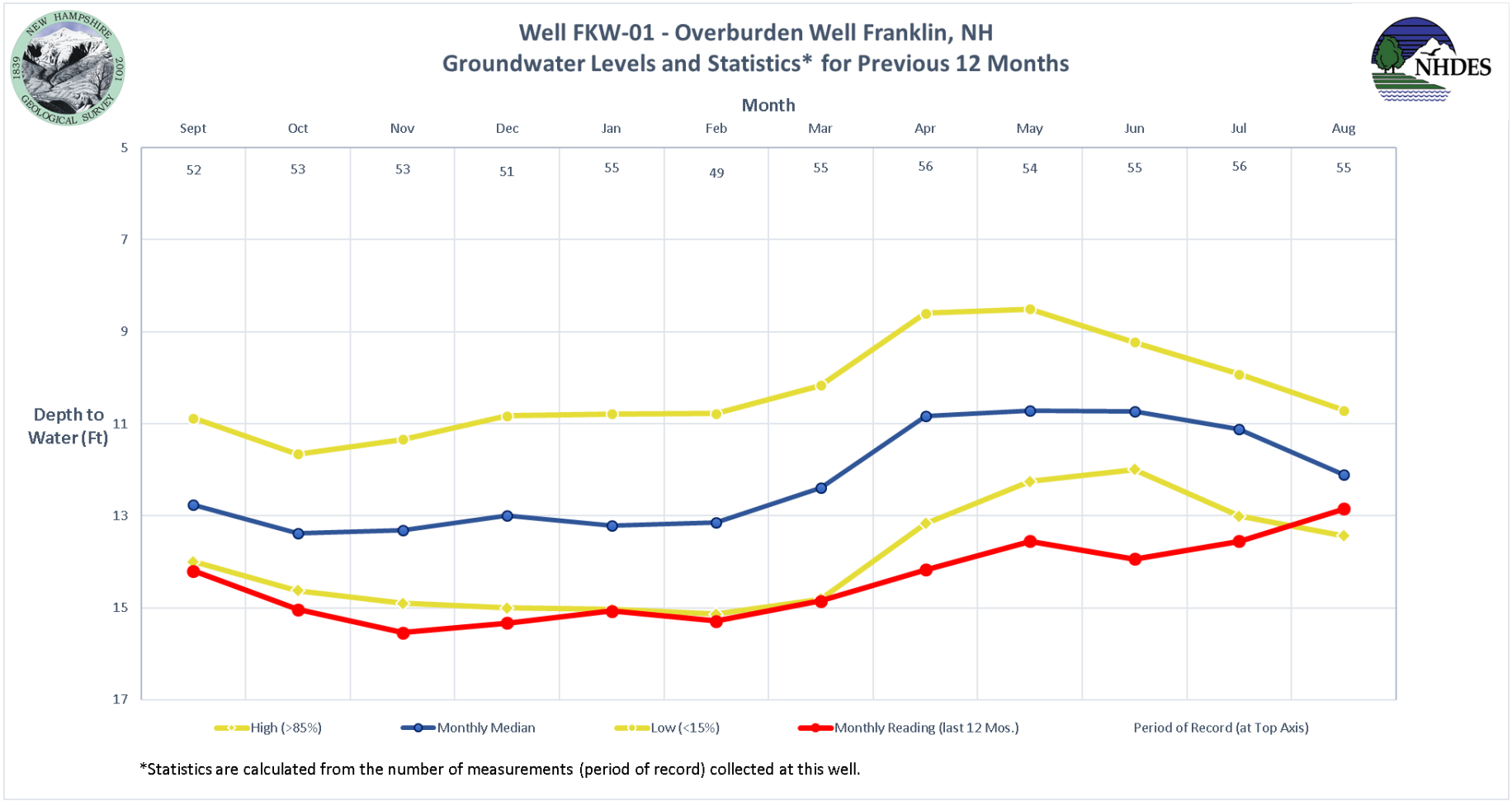

Well DDW-46 - Overburden Well Deerfield, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
28
26
29
27
30
26
25
32
28
26
31
26
36
36.5
37
37.5
38
38.5
39
39.5
40
40.5
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well DDWB-01 - Bedrock Well Deerfield, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
14 10 13 12 14 11 11 13 12 11 14 11
Depth to Water (Ft)
15 16 17 18 19 20 21
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

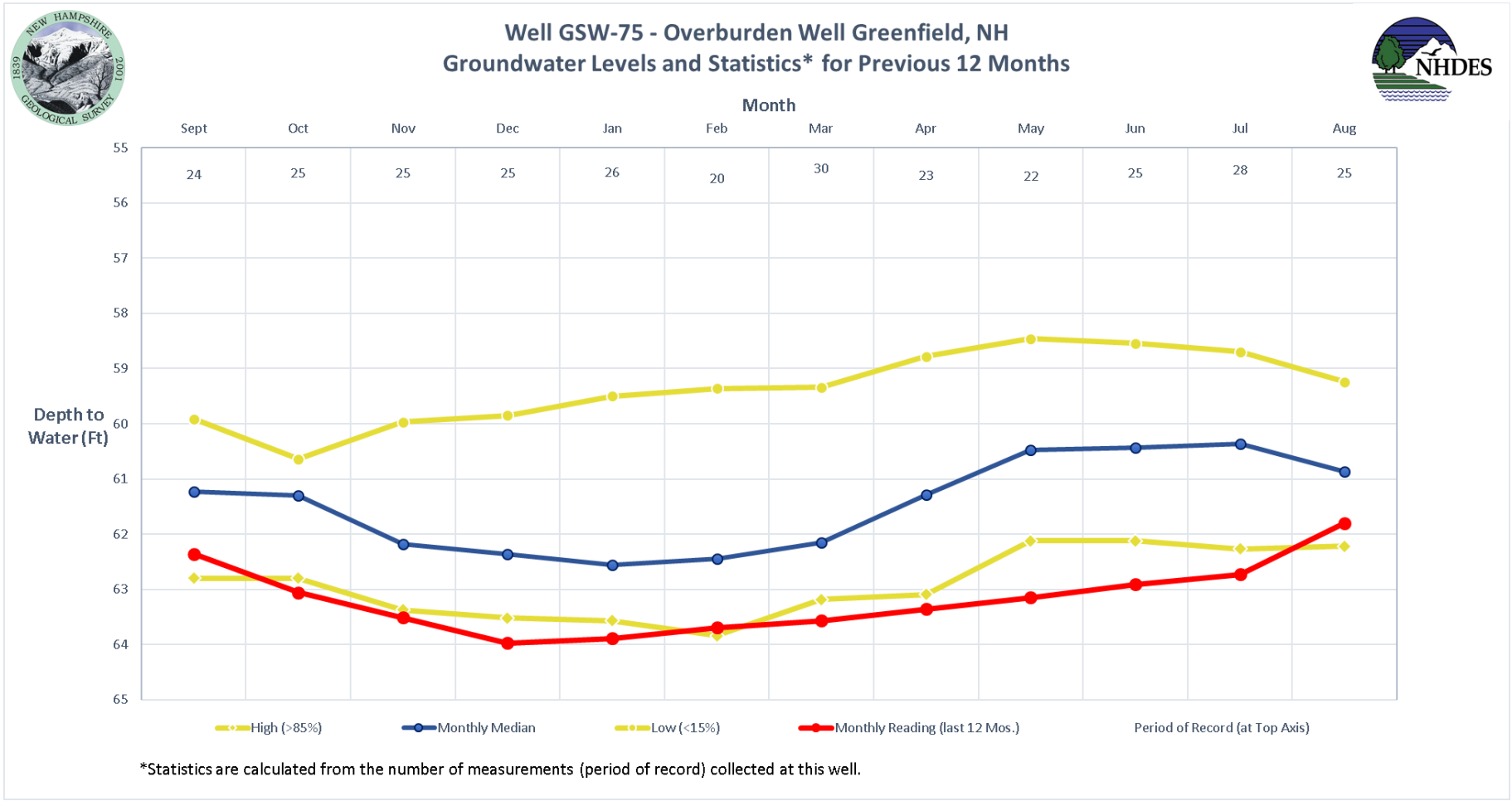

Well EAWB-01 - Deep Bedrock Well East Kingston, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
12 12 11 13 12 11 13 12 12 13 12 15
20 21 22 23 24 25 26 27
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well EAWB-02 - Shallow Bedrock Well East Kingston, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
12 12 11 13 12 11 13 12 12 13 12 15
19 20 21 22 23 24 25 26 27 28
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

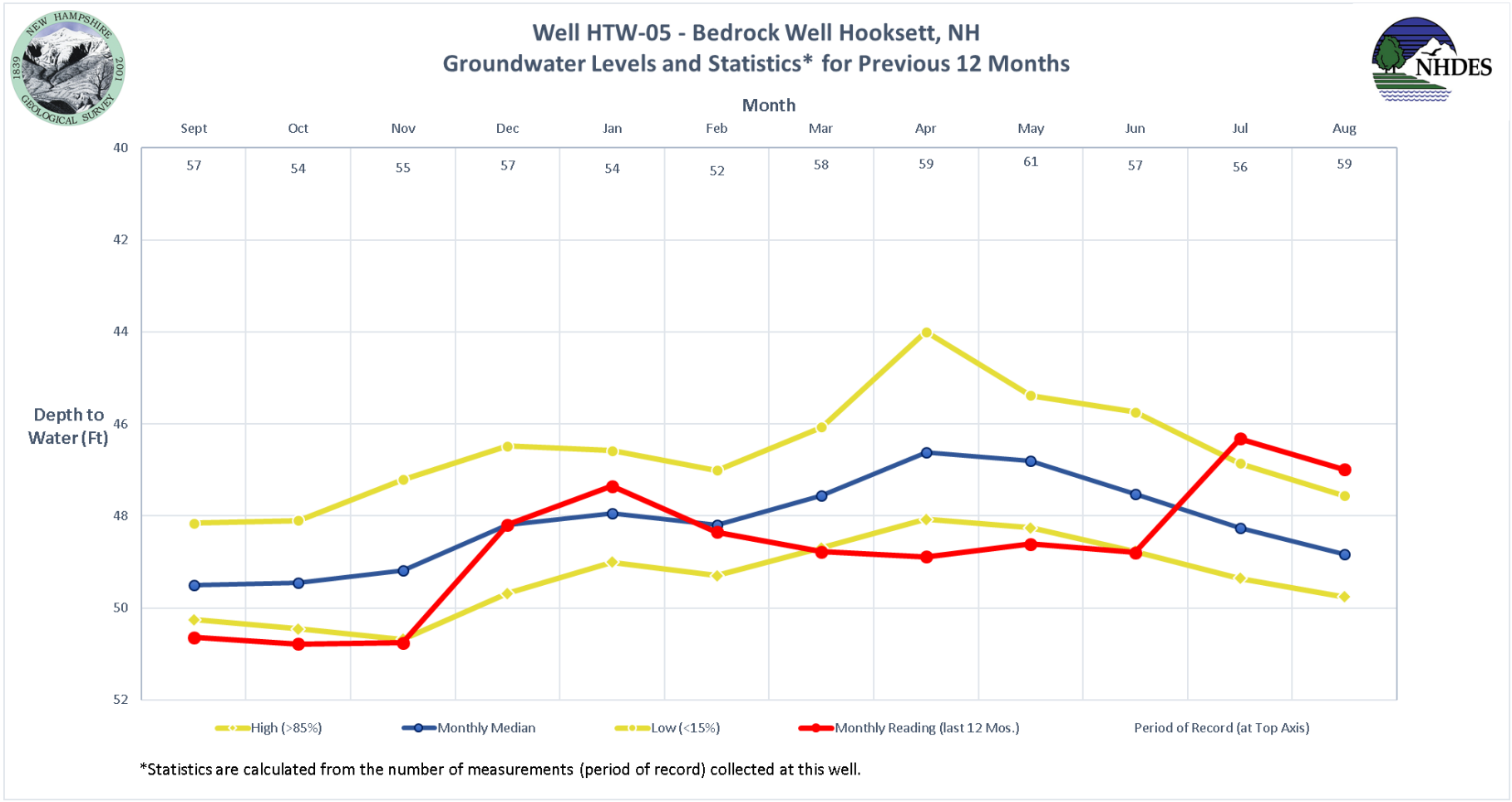

Well EPW-90 - Overburden Well Epping, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
15 13 15 14 17 14 13 16 14 14 15 12
Depth to Water (Ft)
19 21 23 25 27 29 31
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

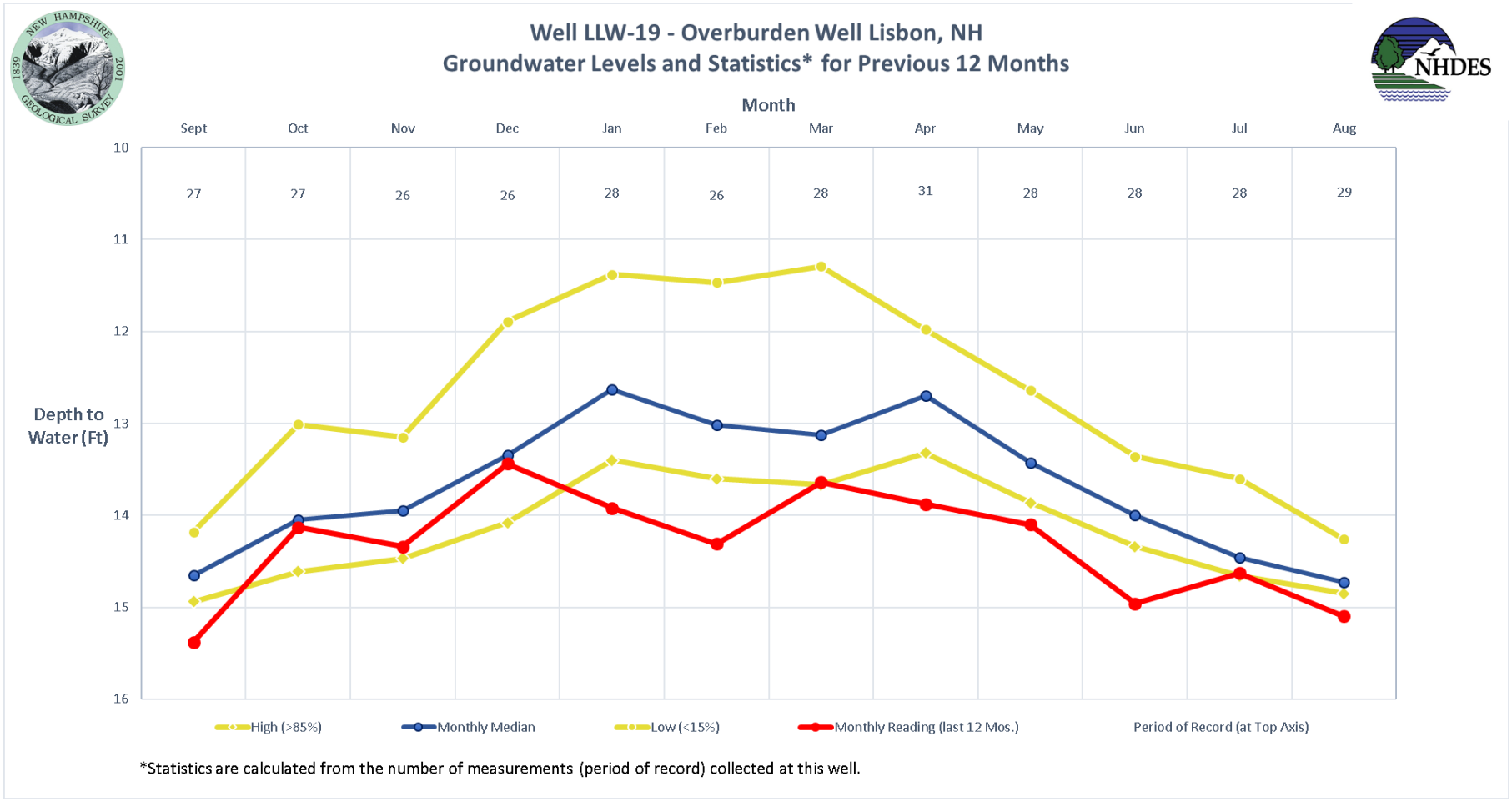


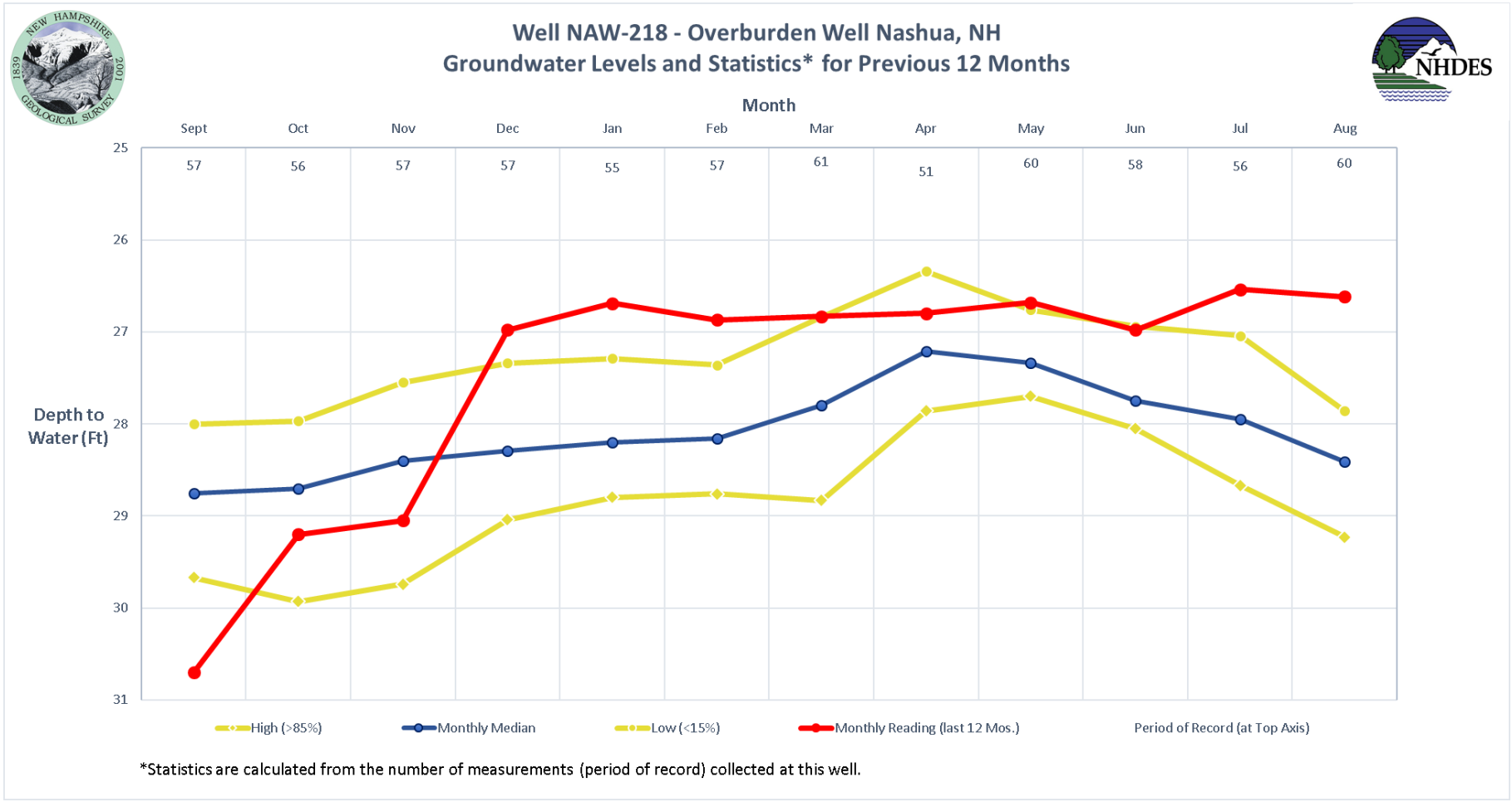
*Statistics are calculated from the number of measurements (period of record) collected at this well.

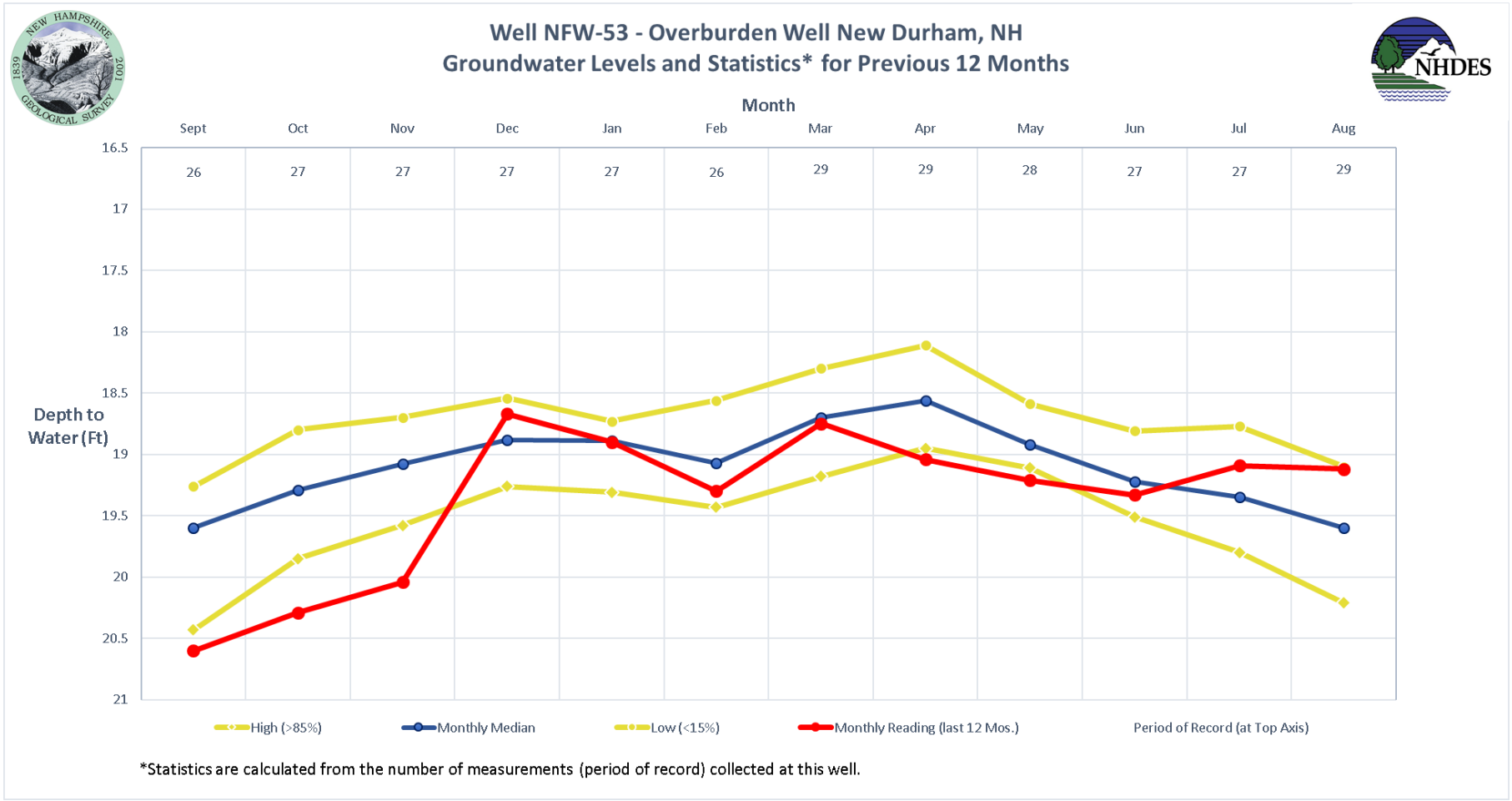


*Statistics are calculated from the number of measurements (period of record) collected at this well.

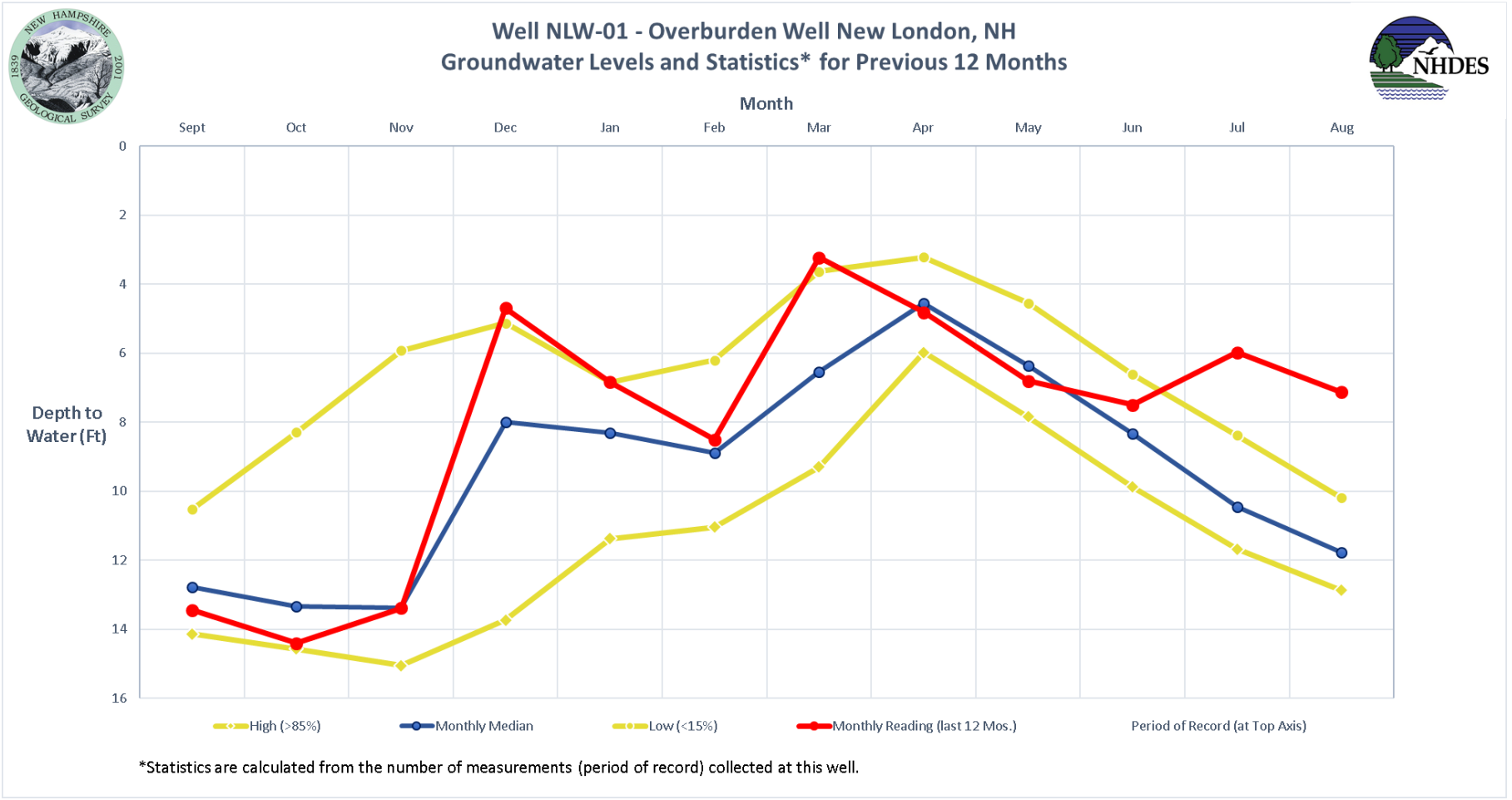

Well HTW-05 - Bedrock Well Hooksett, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
57
54
55
57
54
52
58
59
61
57
56
59
40
42
44
46
48
50
52
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

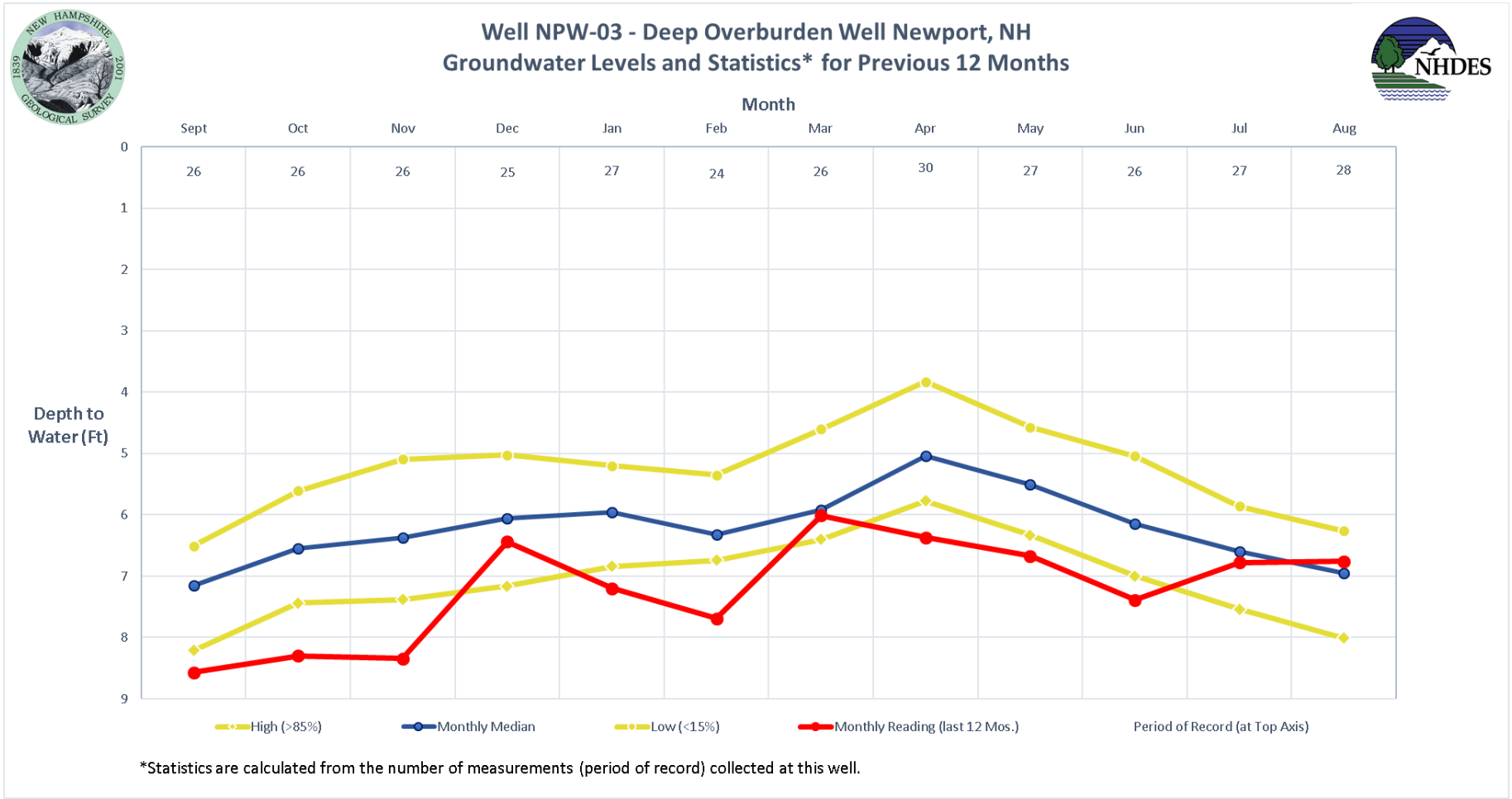

Well LLW-19 - Overburden Well Lisbon, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
10
11
12
13
14
15
16
Depth to Water (Ft)
27
27
26
26
28
26
28
31
28
28
28
29
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well NAW-218 - Overburden Well Nashua, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
57 56 57 57 55 57 61 51 60 58 56 60
25 26 27 28 29 30 31
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

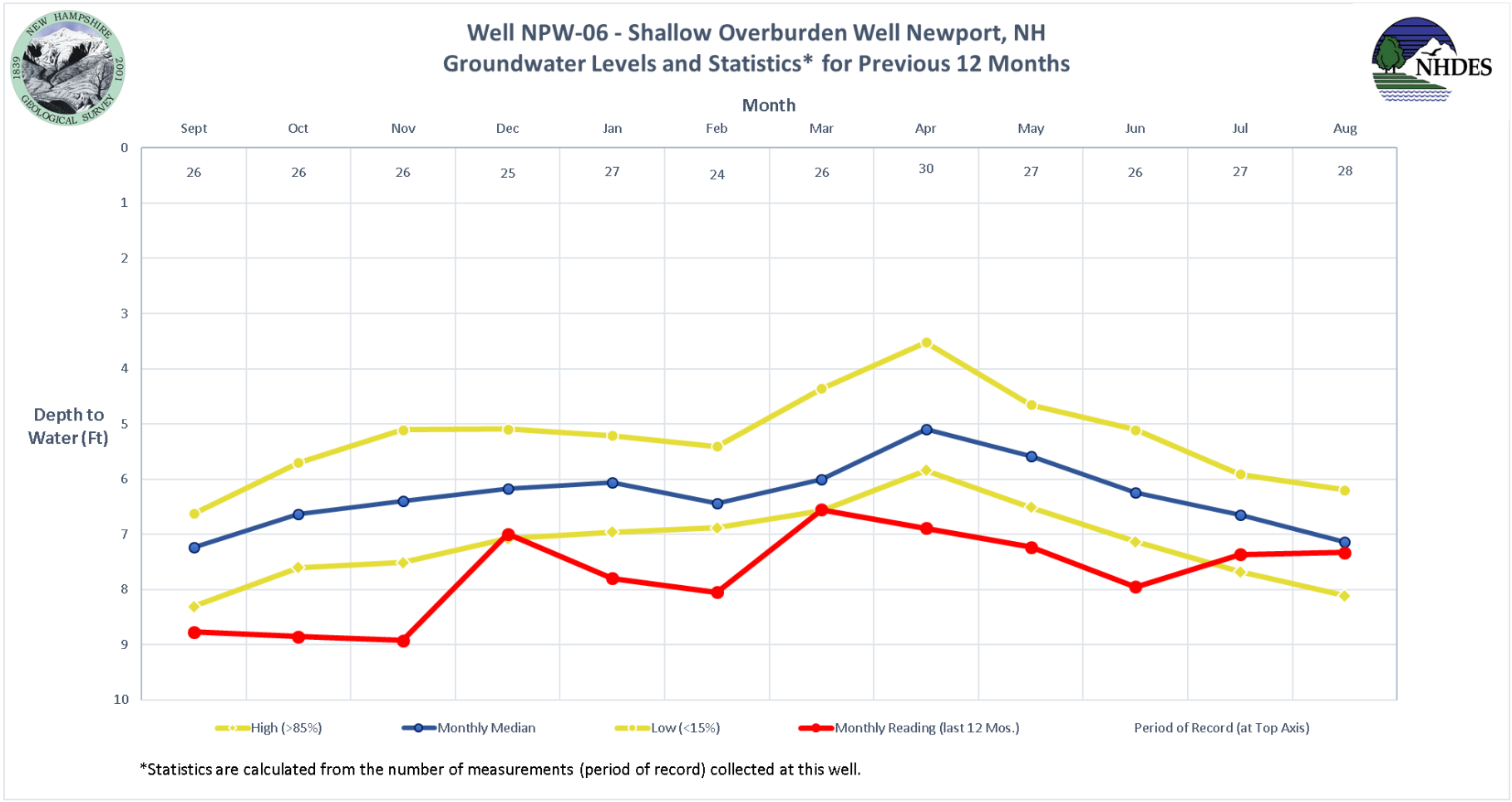


*Statistics are calculated from the number of measurements (period of record) collected at this well.

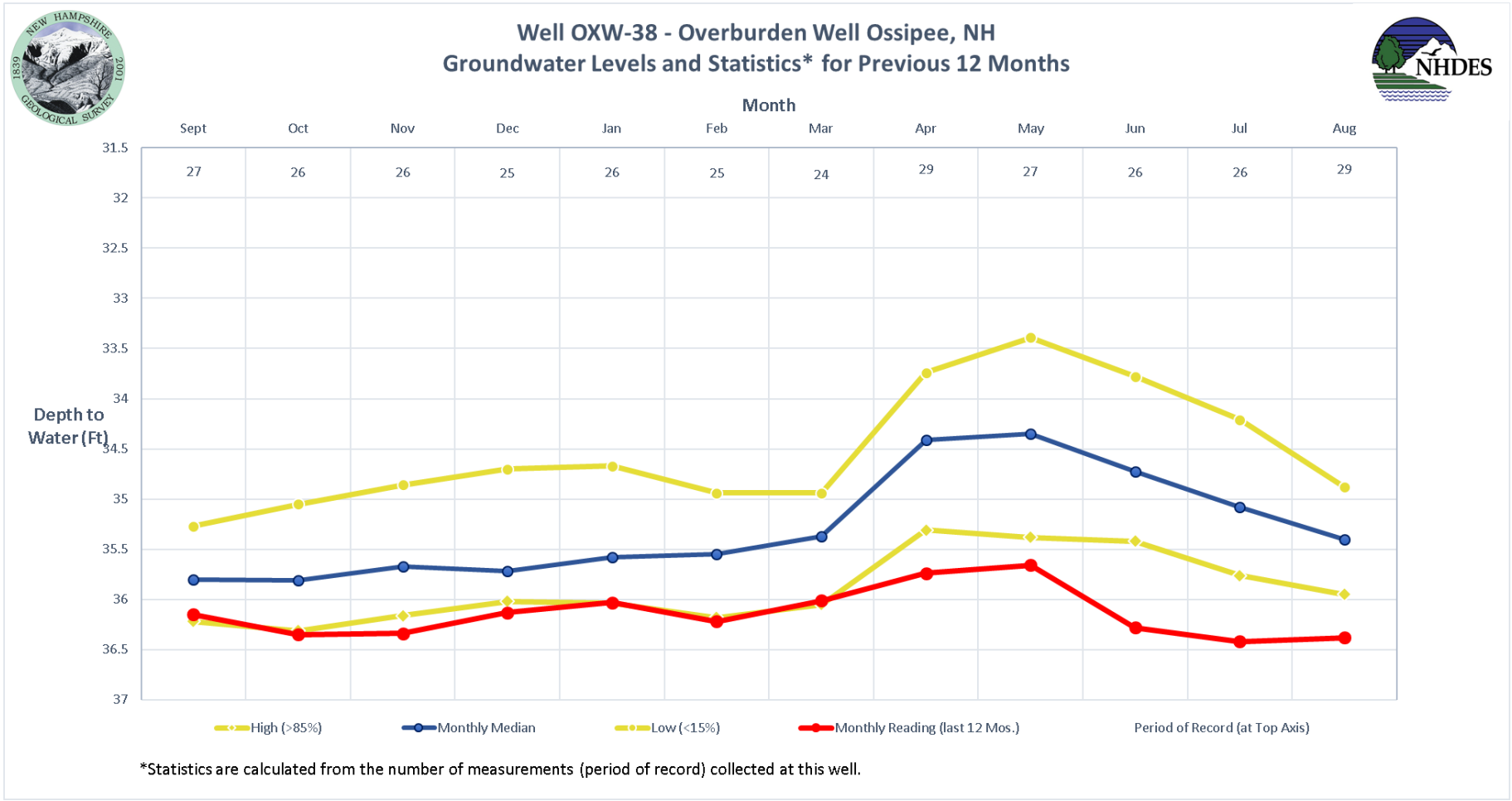

Well NLW-01 - Overburden Well New London, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Depth to Water (Ft)
0
2
4
6
8
10
12
14
16
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



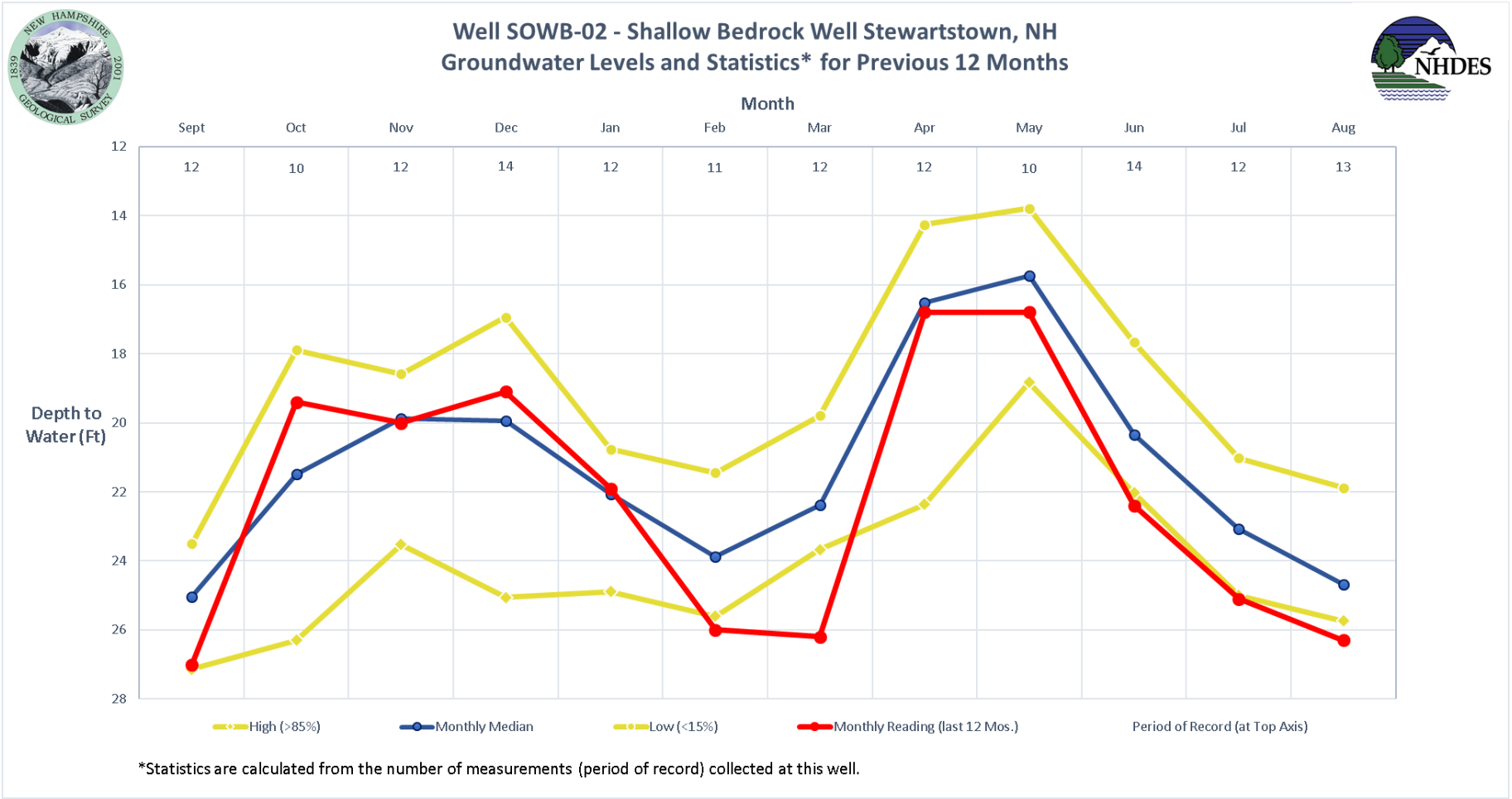
*Statistics are calculated from the number of measurements (period of record) collected at this well.



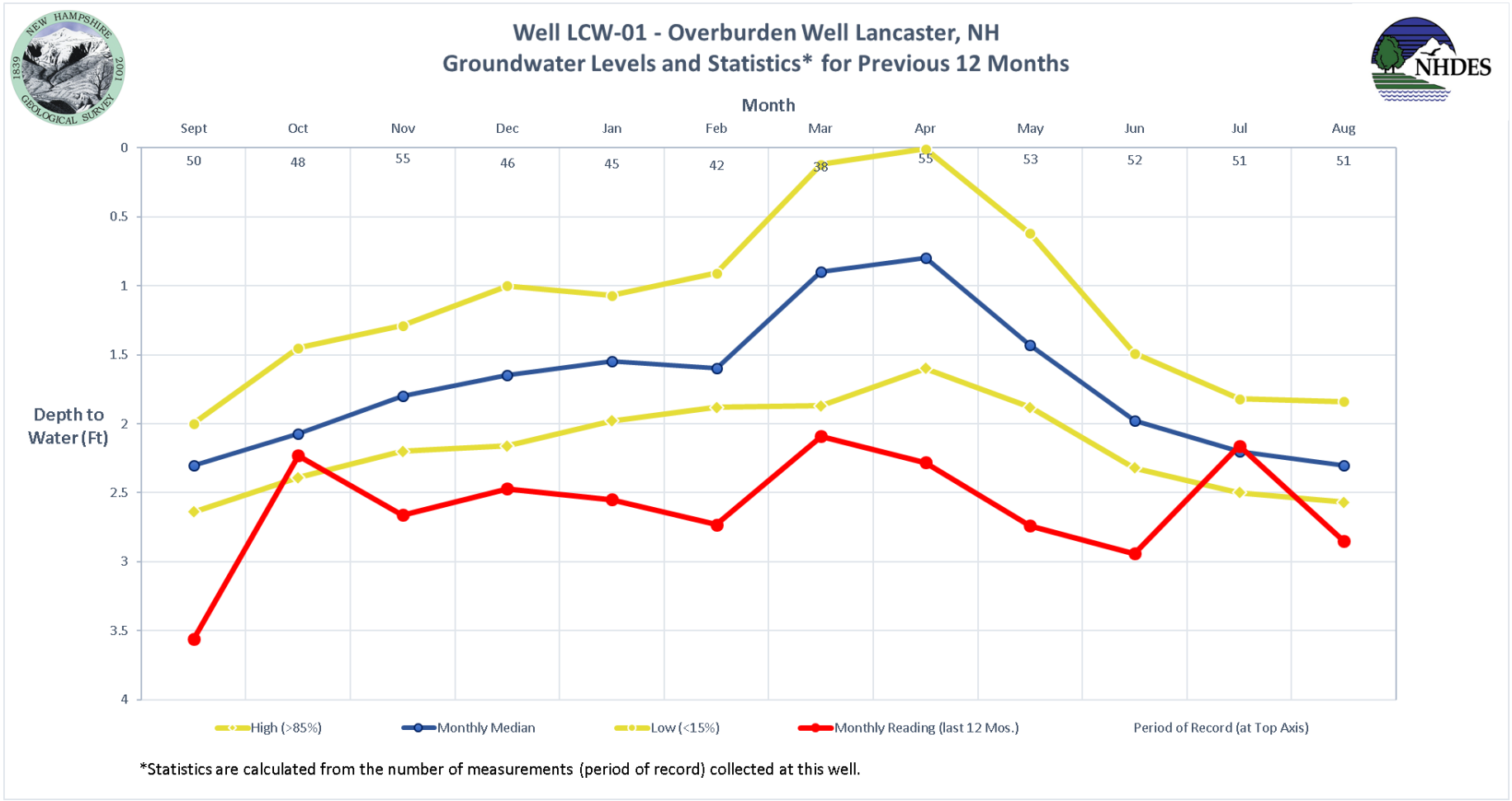
*Statistics are calculated from the number of measurements (period of record) collected at this well.



*Statistics are calculated from the number of measurements (period of record) collected at this well.



*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well LCW-01 - Overburden Well Lancaster, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
50
48
55
46
45
42
38
55
53
52
51
51
0
0.5
1
1.5
2
2.5
3
3.5
4
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.